

461
E574
v. 27
no. 1

Biological
& Medical
Serials

STORAGE

JANUARY, 1916.

PROPERTY

TORONTO BRANCH
ENTOMOLOGICAL SOCIETY
OF ONTARIO
No.
CANCELLED

ENTOMOLOGICAL NEWS

Vol. XXVII.

No. 1.



John Lawrence Le Conte,
1825-1883.

PHILIP P. CALVERT, Ph.D., Editor.
E. T. CRESSON, JR., Associate Editor.

HENRY SKINNER, M.D., Sc.D., Editor Emeritus.

ADVISORY COMMITTEE:

E. T. CRESSON.
PHILIP LAURENT,

ERICH DAECKE.

J. A. G. REHN.
H. W. WENZEL.

PHILADELPHIA:
THE ACADEMY OF NATURAL SCIENCES,
LOGAN SQUARE.

Entered at the Philadelphia Post-Office as Second-Class Matter.


ENTOMOLOGICAL NEWS


Published monthly, **excepting August and September**, in charge of the Entomological Section of the Academy of Natural Sciences, Philadelphia, and the American Entomological Society.

ANNUAL SUBSCRIPTION, \$2.00 IN ADVANCE.

NEW SUBSCRIPTIONS \$1.90 IN ADVANCE. SINGLE COPIES 25 CENTS


Advertising Rates: Per inch, full width of page, single insertion, \$1.00; a discount of ten per cent. on insertions of five months or over. No advertisement taken for less than \$1.00—Cash in advance.

 All remittances, and communications regarding subscriptions, non-receipt of the NEWS or of reprints, and requests for sample copies, should be addressed to ENTOMOLOGICAL NEWS, 1900 Race Street, Philadelphia, Pa. *All Checks and Money Orders to be made payable to the ENTOMOLOGICAL NEWS.*

 Address all other communications to the editor, Dr. P. P. Calvert, 4515 Regent Street, Philadelphia, Pa., from September 15th to June 15th, or at the Academy of Natural Sciences from June 15th to September 15th.

The Conductors of ENTOMOLOGICAL NEWS solicit and will thankfully receive items of news from any source likely to interest its readers. The author's name will be given in each case, for the information of cataloguers and bibliographers.

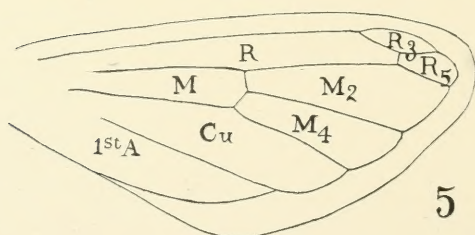
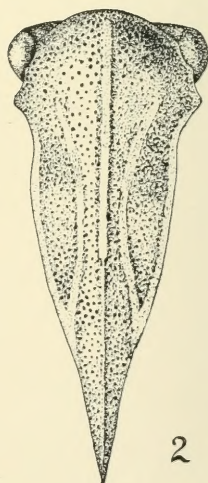
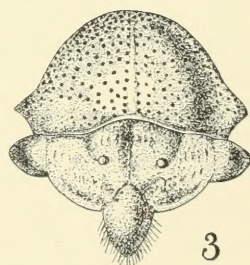
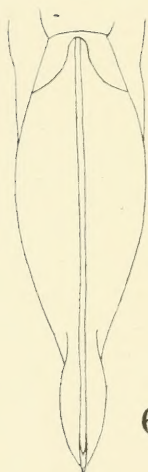
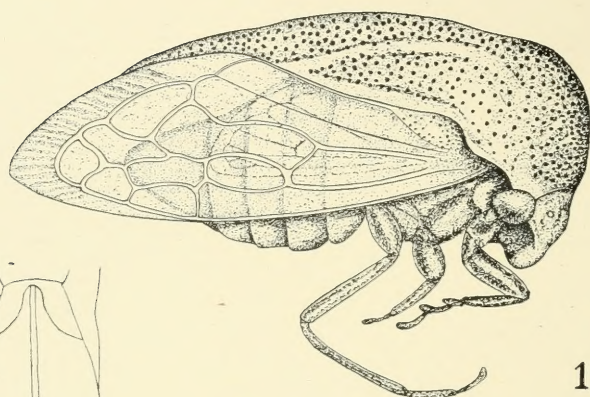
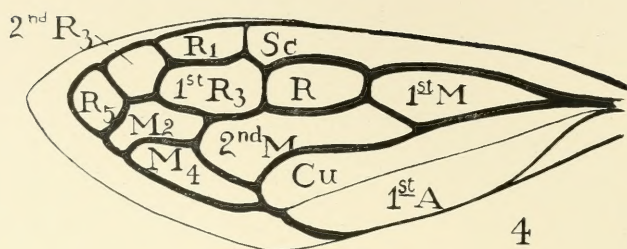
TO CONTRIBUTORS.—All contributions will be considered and passed upon at our earliest convenience, and, as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" for each number into the hands of the printer four weeks before date of issue. This should be remembered in sending special or important matter for a certain issue. Twenty-five "extras," without change in form and without covers, will be given free, when they are wanted; if more than twenty-five copies are desired, this should be stated on the MS. The receipt of all papers will be acknowledged. Proof will be sent to authors for correction only when specially requested.

 The printer of the NEWS will furnish reprints of articles over and above the twenty-five given free at the following rates: Each printed page or fraction thereof, twenty-five copies, 15 cents; each half tone plate, twenty-five copies, 20 cents; each plate of line cuts, twenty-five copies, 15 cents; greater numbers of copies will be at the corresponding multiples of these rates.

PIN-LABELS ALL ALIKE ON A STRIP, 3-POINT TYPE

Pure white Ledger Paper, 30 characters or less, 25c. per 1000. Additional characters 1c. each per 1000. No charge for blank lines. Trimmed—one cut makes a label. All kinds of Printing.

C. V. BLACKBURN, 12 PINE STREET, STONEHAM, MASS., U. S. A.



STICTOLOBUS SUBULATUS—METCALF.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

VOL. XXVII.

JANUARY, 1916.

No. 1.

CONTENTS:

Metcalf—The Rediscovery of <i>Membracis subulata</i> Say, with a Description of a New Genus (Homop.)....	1	Wood—Accidental Color Variation (Lep.).....	35
Girault—Notes on N. Amer. Mymaridae and Trichogrammatidae (Hym.)..	4	Editorial—Remarks on Labelling.....	36
Weiss—Additions to Insects of New Jersey, No. 3.....	9	Greene—Euparyphus tetraspilus Loew (Diptera).....	37
Hebard—Spring Orthoptera found on the Islands in the Vicinity of Charlotte Harbor, Florida.....	14	Entomological Literature.....	37
Psota—A Suction-Pump Collector.....	22	Review of Nelson: The Embryology of the Honey Bee.....	41
Greene—A Correction (Hym.).....	23	Review of Punnett: Mimicry in Butterflies.....	43
Wright—Phycitinae of San Diego, California, and Vicinity, with descriptions of new Species (Lep.).....	24	Doings of Societies—Feldman Collecting Social (Col., Dip.).....	44
Williamson—A New Dragonfly Genus of the Legion Protoneura (Odon.)	30	Amer. Ent. Soc. (Lep., Hym., Col., Orthop.).....	44
Girault—Three new Species of Coccophagus, Family Encyrtidae (Hym.)	33	Newark Ent. Soc. (Lepid., Orthop., Homop., Col., Hymen.).....	45
Wood—Argynnis diana (Lep.).....	53	Obituary—Prof. Raphael Meldola.....	46
		“ Dr. Fred. William Russell..	47
		“ Charles Kerremans.....	48
		Corrections, etc.....	48

The Rediscovery of *Membracis subulata* Say, with a Description of a New Genus (Homop.).

By Z. P. METCALF, North Carolina Agricultural College and Experiment Station, West Raleigh, N. C.

(Plate I)

In 1831 Say described *Membracis subulata* in a paper entitled “Descriptions of New North American Hemipterous Insects Belonging to the First Family of the Section Homoptera of Latreille.” As far as I am aware this species has not been seen since. Van Duzee first suggested that it was a species of *Stictocephala* (Goding’s Catalogue of the Membracidae, page 410). Later (Studies in North American Membracidae, page 50) he accepted Goding’s statement on Uhler’s authority that this species is but a variety of Say’s *Atymna inornata*. It was, therefore, with a great deal of pleasure that I discovered among the Homoptera collected last season, a specimen that agreed in every way with Say’s description save for a few minor points. It is of interest further to note that while the wing

venation is similar to a *Stictocephala*, the general shape of the insect suggests a *Cyrtolobus*. I propose, therefore, a new genus to include this rare and interesting form.

STICTOLOBUS new genus.

Allied by wing venation to the Cerasini near *Stictocephala* Stal. Pronotal hump entirely different, suggesting *Cyrtolobus* Goding.

Head with median sulcus faint, two rather prominent oval callosities either side, between the ocelli; ocelli about equidistant from each other and eyes; eyes rather prominent, their diameter equalling one-fourth the width between eyes; head with median length only one-half width between eyes, contour of cheeks convex, basal contour of head sinuate, disk of face vertically rugose.

Metopidium a little wider than high; lateral angles short triangular directed backward; a smooth callosity above each eye extending from lateral margin about one-third distance of the base of the metopodium; median carina almost obsolete at base, becoming stronger posteriorly; whole metopidium finely and uniformly punctured; pronotum long, not high, highest at middle; base distinctly sinuate, whole surface, save two impunctured lines either side, finely and evenly punctured; impunctured lines arising above and behind humeral angles; one running along the lateral margin of the pronotum to behind the middle; the other arising about half way between the humeral angles and the dorsal carina, curving upward and backward and eventually downward in a wide curve to meet the impunctured line on the lateral margin of the pronotum; posterior process long, subulate, strongly curved downward, equalling the abdomen, shorter than the fore wings.

Legs normal, hind tarsi longest. Fore wings, venation similar to *Stictocephala* Stal. Subcosta marginal unbranched; radius with three branches; medius with two branches, medius 1 plus 2 and medius 3 plus 4; medius merging with radius for more than half its length, then suddenly divergent and running free until it branches; medius 1 plus 2 merging with radial sec-

tor through its middle third, then diverging and forming with radius 4 plus 5 a triangular stylate terminal cell; cubitus unbranched, connected by two cross veins with medius; three anal veins. Radial cell undivided; cell radius one narrowed apically; first radius three nearly quadrangular; second radius three smaller; radius five terminal, triangular; first medial cell triangular; second medial cell larger, constricted medially; medius two smaller than first radius three; medius four equaling first medius in size. In the hind wing, radial vein two-branched, radius 4 plus 5 not confluent with medius 1 plus 2, but connected by a short cross vein; medial vein two-branched; cubital vein unbranched; cell radius three small, shorter than radius five, which is terminal truncate; other cells about as in *Stictocephala*.

Type of the Genus, *Membracis subulata* Say.

***Stictolobus subulatus* Say.**

General color of pronotum soiled testaceous yellow, more or less marked with yellowish; two impunctured lines either side yellowish; dorsal carina anteriorly yellowish, posteriorly blackish testaceous; callosities yellowish; face reddish; eyes black; mostly yellow beneath with legs pale yellowish; rather closely set everywhere with paler hairs; fore wings transparent slightly infumed apically; veins brownish.

Female genitalia: last ventral segment deeply, broadly, roundly emarginate, pygofer long, slender, slightly exceeded by the ovipositor. Length of pronotum, 4.6 mm. Width at humeral horns, 2.0 mm. Height from humeral horns, 1.1 mm.

Described from a single female specimen taken at light at Raleigh. Early July. Perhaps from oak. Collection of the Department of Zoology and Entomology of the North Carolina College of Agriculture and Mechanic Arts, West Raleigh, N. C.

EXPLANATION OF PLATE I.

All the figures relate to *Membracis (Stictolobus) subulata* Say ♀.

Fig. 1. Lateral view.

Fig. 2. Dorsal view of the pronotum.

Fig. 3. Anterior view showing head and metopidium.

Fig. 4. Fore wing with cells numbered.

Fig. 5. Hind wing with cells numbered.

Fig. 6. Last ventral segment and genitalia.

Notes on North American Mymaridae and Trichogrammatidae (Hym.).

By A. A. GIRAULT, Washington, D. C.

1. *Abbella subflava* Girault. The following specimens: "Parasites of chinch bug eggs, J. W. McCulloch, Manhattan, Kansas." Also, "Reared from jassid eggs, C. N. Ainslie, Elk Point, South Dakota, July 25, 1914. Webster No. 11874."

2. *Abbella auriscutellum* new species.

Female.—Length, 0.60 mm. Black, the scutellum and postscutellum bright golden yellow, also the caudal margin of the scutum narrowly (and apparently the median line of the scutum more or less, very faintly). Coxae and femora black. Scutum scaly reticulate. Rest of legs very pale yellow, including the knees broadly. Antennae dusky yellow, the two funicle joints subequal.

Fore wings with the distinct substigmatal spot continued right across the wing, the stripe broader and fainter than the spot and often broadly interrupted caudad of the middle; the wing also infuscated across under all of the submarginal vein and part of the base of the marginal. Discal ciliation of the fore wing dense, normal, about twenty lines where widest, the marginal cilia rather short (about one-sixth the greatest wing width). No line of cilia back from the stigmal vein. Caudal marginal cilia of hind wings distinctly longer than the longest cilia of the fore wing, about twice longer than the average width of the blade. Caudal wings with two complete lines of discal cilia cephalad and one caudad, the latter spaced farther apart in the line.

Abdomen about as in *Trichogramma japonicum* Ashmead. Abdomen disto-dorsad suffused with yellowish. Mandibles tridentate, the two outer teeth more distinct than the inner.

Described from six females "reared from eggs of *Draeculacephala mollipes*, Tempe, Arizona, May 26, 1914, E. H. Gibson, Coll. Webster No. 12, 211."

Type: Catalogue No. 19182, United States National Museum, Washington, D. C., a female on a slide with two paratype females and two heads of paratypes.

3. *Oligosita americana* Ashmead. Several specimens of both sexes reared from jassid eggs, Las Vegas, New Mexico, C. N. Ainslie, Webster No. 6689.

4. *Oligosita sanguinea claripes* new variety.

Female.—Like the typical form but the legs are white excepting the red caudal femora (not all pale brownish as in the other form) and

the caudal tibiae just below the knees dorsad. Also, the scape and pedicel and funicle 1 are white and there is no suffused stripe across the wing from the substigmatal spot. Compared with paratypes of the typical form and with type *giraulti*. The latter has a silvery band across base of the abdomen, at least ventrad.

Described from one female on a slide labelled "W 5529. Secondary parasite of *Asphondylia miki* on alfalfa seed. Sacaton, Ariz., June 5, 1911. Smyth."

Type.—Catalogue No. 19183, United States National Museum, a female on a slide.

5. **Lathromeroides neomexicanus** new species.

Female.—Length, 1.00 mm. Dusky yellow, the abdomen with three to four black cross-stripes, thus like *fasciiventris* but the antennae and legs are pallid except the distal half of the club (joint 3), proximal two-thirds of the pedicel, coxae, femora, most of tibiae and distal tarsal joint which are dusky. Exserted valves of the ovipositor black. Pedicel elongate. Two-ring joints.

Described from one female reared from jassid eggs, Las Vegas, New Mexico, C. N. Ainslie. Webster No. 6689.

Type.—Catalogue No. 19184, United States National Museum.

The hypopygium is very prominent in this genus.

6. **Trichogramma minutum** Riley. The following rearing records: From eggs of *Estigmene acreae* Drury, Dallas, Texas, W. D. Pierce. A male from eggs on *Cyperus*, Lakeland, Florida, G. G. Ainslie. Webster No. 5272 AA. Three females, same locality and collector, from eggs of *Eudamus proteus*. Webster No. 8390. January 6, 1913. A male, same locality, from egg of *Bactra lanceolana*, Webster, No. 5272 T. Two females from alfalfa, Tempe, Arizona. T. S. Wilson, August 3, 1913. Webster No. 7222 G. And a female from eggs of *Anisota senatoria*, College Park, Maryland, August 1, 1914. N. Kisluk, A. B. Gahan. Also many specimens, 9-7, 1912, Mitchellville, Maryland, from eggs of *Ceratonia catalpae*, A. B. Gahan.

XENUFENS new genus CHAETOSTRICHINI.

Female.—In my table of genera runs to *Japonia* but differs notably in the structure of the antennae, which are short and strongly capitate, the club short and enlarged, the funicle transverse-semi-circular, both joints much wider than long, the pedicel over half the size of the club, the one ring-

joint distinct. Moreover, the abdomen is as in *Ufens*. The venation in poor specimens resembles that of *Trichogramma*, but the stigmal vein is distinctly shorter than the really straight marginal, yet well-developed, the oblique hairless line from it containing many setae and is complete and more or less confused with the discal ciliation which is mostly normal. Hind wings with two complete lines of discal cilia which are cephalic; a short caudal line under the venation. There is one more or less distinct line of discal cilia from the apex of the stigmal vein to apex of the wing. Tarsal joints not long but distinctly longer than wide.

7. *Xenufens ruskini* new species. Genotype.

Female.—Length, 0.45 mm. Jet, the face and vertex yellowish, the fore wings slightly infuscated out to the end of the venation, the apex of the abdomen above and the parapsides, orange yellow. Venation, tarsi and antennae dusky yellowish. Fore wing with about fifteen lines of discal cilia where broadest. Funicle 1 longer than 2. Mandibles tridentate.

Described from eight females reared from the eggs of *Eudamus proteus*, Lakeland, Florida, G. G. Ainslie, Webster No. 8390 B., January, 1913.

Type.—Catalogue No. 19185, United States National Museum, two females on a slide. Two slides with six paratypes in the same collection.

8. *Anagrus armatus nigriventris* Girault. A female from jassid eggs, Salt Lake City, Utah, September 2, 1912, C. N. Ainslie, Webster No. 8827.

9. *Anaphes perdubius* new species.

Female.—Length, 0.65 mm. Agrees in nearly every particular with the original description of *iole* but the thorax is normal, no longer than the abdomen and the distal funicle joints are somewhat longer.

Described from one female on a slide with No. 8, same data.

Type.—Catalogue No. 19186, United States National Museum, one female on a slide.

10. *Anaphes picinus* new species.

Female.—Length, 0.75 mm. Differs from *gracilis* Howard in having the segments of the funicle different—thus joint 4 is subquadrate in

gracilis but here distinctly longer than wide, longest or subequal to 6; the legs are distinctly darker here and while the discal cilia of the fore wing are about the same, here a midlongitudinal line of 3 to 4 isolated setae runs farther proximad. Also, here, there is a more distinct infumated cross-stripe on the fore wing about midway between the apex and the venation (much less distinct in *gracilis*); otherwise about the same but larger. Differs from *cinctiventris* Girault in that the latter has hyaline wings (including the hind wings, these maculate dusky here), its hind wings bear two lines of discal cilia at cephalic margin and one at the caudal (proximad) as in *gracilis* but here the two cephalic lines are more separated and the fore wings are broader in *cinctiventris*. Cephalic tibiae, tips of other tibiae and the tarsi pallid. Across the widest part of the blade, only about four lines of discal cilia. Compared with type of *cinctiventris* and a specimen of *gracilis*.

From two females on a slide labelled "No. 5054. Koehler, N. Mex. No. cages 3.5 B. H8, F. H. Gates."

Types.—Catalogue No. 19187, United States National Museum, the above specimens with type of the following species (on the side nearest the white label).

11. *Anaphes gracilipes* new species.

Female.—Length, 0.58 mm. Differs from *gracilis* in having the funicle joints longer, 6 the longest, nearly twice longer than wide, the legs are much darker, the discal ciliation of the fore wing all distocephalad and distad (about three lines, more or less) and there is an isolated line of five (5) cilia caudad of middle about as in the preceding new species (*picinus*); a line of discal cilia does not go around the apex and along the disto-caudal margin as in *gracilis*; funicles 2-3 are longer than wide. From *cinctiventris* in the maculate hind wings, the shorter fore wings and much less discal ciliation in the fore wing. From the preceding new species (*picinus*) in the hyaline wings, the shorter wings, the different arrangement of the discal ciliation in the fore wing and in having funicle 6 longer than 4. Compared with the three species in question.

From one female mounted with the types of *picinus*, same data.

Type.—Catalogue No. 19208, United States National Museum.

Anaphes picinus and *gracilipes* belong really to *Erythmelus* Enock like *gracilis* and its allies.

12. *Camptoptera pulla* Girault. Two females, Compton, California. Reared from leaves with *Aleyrodes* species and *Heliothrips fasciatus*. H. M. Russell, collector.

13. *Camptoptera saintpierrei* Girault. The type is on a slide in the United States National Museum, Catalog No. 19188. The species was described in the Memoirs of the Queensland Museum, III.

14. *Gonatocerus dolichocerus* Ashmead. The fore legs are all pale yellow.

15. *Gonatocerus dolichocerus ashmeadi* new variety.

Female.—Length, 1.15 mm. The same as the typical form but funicle 1 is longer, somewhat longer than the pedicel, twice longer than wide and the legs are all light lemon yellow except the dark hind tibiae (hind femora dusky distad in the typical form, rest of legs yellow).

The *male* has a very short scape, not twice longer than wide; pedicel a little wider than long; funicle 1 is shortest, somewhat longer than wide, 2 nearly twice longer than wide, subequal to the following, the club joint a little shorter, all longitudinally striate.

Described from three males, one female labelled "No. 965. *Ooetonus homalodiscae* Ashmead, August 14, 1904." The host has been published.

Types.—Catalogue No. 19189, United States National Museum, the above specimens on a slide.

16. *Polynema striaticorne* Girault. Two females, Hagerstown, Maryland, July 21, 1912. Webster No. 5967.

A. *Polynema striaticorne boreum* new variety.

Differs from the typical form in having the scape all black, the body black not brown-black, funicle 1 is as long as 4 or 5 (4 longer than 1 in *striaticorne*, 5 still more so) and the wings are somewhat smaller but not greatly (funicles 4-6 increase in length in the typical form but here they are subequal). Also, the cephalic femora are wholly black (mostly yellow in *striaticorne*). Differs from *consobrinus* in having the wing longer and the discal ciliation somewhat finer; also funicle 1 is longer. The species *brittanum* has shorter wings and the general coloration is brown, the cephalic tibiae lighter.

Described from one female taken by sweeping wheat, December 29, 1914. W. 8844, C. N. Ainslie, Elk Point, South Dakota.

Type.—Catalogue No. 19190, United State National Museum, the specimen on a slide.

Additions to Insects of New Jersey, No. 3.

By HARRY B. WEISS, New Brunswick, New Jersey.

According to Mr. Buchholz, the *Leucania extincta* Gn. (Lep.) records in the 1909 list, "Insects of New Jersey," refer to *Leucania linita* Gn., which was wrongly identified as *extincta*. Mr. Buchholz further informs me that *Leucania extincta* is a Southern species and has never been taken in New Jersey. This correction was made in my second list (Ent. News, June, 1915, p. 261) without the above explanation. In Dyar's "List of N. A. Lepidoptera," *linita* Gn., *scirpicola* Gn. and *amygdalina* Harvey are given as synonyms of *Heliophila* (*Leucania*) *extincta* Gn. *Leucania scirpicola* Gn. is recorded as a distinct species in my second list by Mr. Buchholz. In Smith's "Check List of the Lepidoptera of Boreal America," *extincta* Gn. is listed with *amygdalina* Harv. as a synonym. I would appreciate hearing from interested persons concerning the above confusion and difference of opinion.

Ochria sauselitae (Lep.) should be cancelled from my first list (Ent. News, March, 1915), as Mr. M. H. Mead informs me that the record was based on a misidentification. *Papaipema necopina* Grt. (Lep.) is mentioned by Smith in his 1909 list as being sure to occur in New Jersey. In my first list of additions it is definitely recorded from Passaic Park by M. H. Mead. In my second list, Mr. Buchholz states that *necopina* has never been taken south of Buffalo, New York, and that *Papaipema maritima* Bird, which he records from Union County, New Jersey, should take the place of *necopina* in the 1909 list which was wrongly identified. In order to clear up the doubt in this matter, it will be necessary for the gentlemen in question to compare their specimens.

To Mr. J. R. de la Torre Bueno, I am indebted for the following notes and corrections relating to the Heteroptera in the 1909 list. *Thyreocoris lateralis* Fab. equals *Thyreocoris gillettei* V. D. and all records under the latter should apply to the former. *Lygaeus reclinatus* Say is a Western form and not found in New Jersey. *Orsillus scolopax* Say is still un-

recognized. *Cymus claviculus* Fall. is really *discors* Horn to which all records under the former should be referred. *Heraeus plebejus* Stal. is the only species in New Jersey, *orbicollis* Uhl., being a mss. name and undoubtedly referring to the same species. *Reduvius pallidus* Reut. is a synonym of *R. sordidus* Reut., and all records should be transferred to the latter. *Barce simplicipes* Uhl. is a variety of *annulipes* Stal.

Mr. Torre Bueno also gives the following species which should undoubtedly be found in New Jersey: *Blissus hirtus* Mont. (New York); *Carpilis ferruginea* Stal. (Long Island in cranberry bog); *Leptoglossus magnoliae* Heid. (New York, Long Island, Massachusetts); *Tollus curtulus* Fab. (New York); *Ceraleptus americanus* Stal. (Long Island), (to be found in sandy places probably at roots of beach bushes); *Garzaphia angulata* Heid. (Eastern States); *Carthasis decorata* Uhl.; *Merragata hebroides* B. (Staten Island); *Enicocephalus culicis* Uhl. and *farmicinus* Uhl.; *Milyas barberi* Ds.; *Fitchia spinosula* Stal. (Long Island) and *Phymata vicina* Handl. (New York).

Order MALLOPHAGA.

Docophorus platyrhynchus Nitzsch. From *Buteo lineatus*. C. H. Richardson.

Order NEUROPTERA.

Sisyra lampyra Navás. Lakehurst, June 28, 1911. Torre-Bueno.
Hesperoleon placidus Navás. Pt. Pleasant, July 25, Bueno. (Brook. Bull. Vol. x, No. 3).

Order TRICHOPTERA.

Neuronia pardalis Walker. Lakehurst, June 5, 1909. L. B. Woodruff. (Jour. N. Y. Ent. Soc., Vol. 21, p. 163.)
Oecetina fumosa Bks. Pemberton, June 20. H. B. Scammell.
Plectrocnemia cinereus Hg. Pemberton, June 24. H. B. Scammell.

Order ODONATA.

Agrion aequabile Say. Great Notch, May 30. W. T. Davis. (Jour. N. Y. Soc. Mar., 1913.)
Lestes uncatus Kirby. Newfoundland, August 4. W. T. Davis. (Jour. N. Y. Soc., Mar., 1913.)

- Enallagma cyathigerum** Charpentier (*annexum* Hagen) Ramsey, May 20. (Jour. N. Y. Soc., Mar., 1913.)
- Enallagma piscinarium** Williamson. Lakehurst, May 29, 1910. Woodruff. (Jour. N. Y. Soc., Mar., 1913.)
- Enallagma ebrium** Hagen. Newfoundland, Lake Hopatcong, July. (Jour. N. Y. Soc., Mar., 1913.)
- Gomphus abbreviatus** Hagen. Greenwood Lake, June 18, 1911. F. M. Schott.
- Cordulegaster erroneus** Hagen. Bear Swamp, Ramapo Mts., August 18, 1910. Chas. E. Slight. (Jour. N. Y. Soc., Mar., 1913.)
- Lanthus albistylus** Hagen. Bear Swamp, Ramapo Mts., June, July. C. E. Slight. (Jour. N. Y. Soc., Mar., 1913.)
- Tetragoneuria spinigera** Selys. Newfoundland, May 28, W. T. Davis. Greenwood Lake, June 30. Watson. (Jour. N. Y. Soc., Mar., 1913.)
- Williamsonia lintneri** Hagen. Paterson, May 4, J. R. Grossbeck. (Bull. Brook. Ent. Soc., Vol. 8, p. 93.)

Order THYSANOPTERA.

- Hoplothrips karnyi** Hood. Pemberton, August 29, 1914, on dead tree. H. K. Plank.
- Cryptothrips gilvipes** Hood. Pemberton, April, 1915. In cocoons of *Gelechia trialbamaculella*. H. B. Scammell.

Order HOMOPTERA.

- Aphis sorbi** Kaltenbach. Throughout the state on apple. T. J. Headlee & C. H. Richardson. The rosy apple aphid. (This is the form *malifoliae* of *Aphis mali* of the 1909 list.)
- Aleyrodes coryli** Britton. Norwood, August, on hazel nut. H. B. W.
- Aleyrodes packardi** Morrill. Westwood, May, 1915, on strawberry. G. Kircher.
- Aleyrodes waldeni** Britton. Somerville, July, on leaves of *Juglans* sp. H. B. W.
- Chionaspis wistariae** Cooley. Rutherford, on wistaria. Plants originally came from Japan. H. B. W.
- Chrysomphalus perseae** Comst. In greenhouses on orchids. H. B. W.
- Leucaspis bambusae** Kuwana. Riverton, March 16, 1911. On bamboo. H. B. W.

Order HEMIPTERA (HETEROPTERA).

- Aradus shermani** Heid. Lakehurst, May 25. Torre-Bueno.
- Drymus crassus** V. D. Camden, Torre-Bueno.
- Acantholoma denticulata** Stal. Schooleys Mt., May 20. Lutz. (Jour. N. Y. Ent. Soc., Vol. 20, p. 138).

Order COLEOPTERA.

- Trechus borealis** Schaeffer. New Jersey, Nicolay. (Jour. N. Y. Soc., Mar., 1915).
- Atheta virginica** Brnhv. Vineland, March 10. H. B. W.
- Oxypoda (Sphenoma) obliqua** Casey. Vineland, September 14. H. B. W.
- Philonthus varians** Payk. Franklin Furnace, F. M. Schott. (Jour. N. Y. Soc., Mar., 1915).
- Ips caelatus** Eichh. Rutherford, May 10, 1915. In shoots of *Pinus mughus*. H. B. Weiss.
- Monotoma parallela** Lec. Anglesea, March. H. B. Weiss.
- Zenoa picea** Beauv. Red Bank, July 4, 1908. Kaerber. (Ent. News, Vol. 26, p. 238.)
- Hylecoetus lugubris** Say. Coytesville, April 18, 1915. R. P. Dow.
- Dyscinetris (Chalepus) rubra** Web. New Egypt, May 21. H. B. Scammell.
- Leptura exigua** Newm. Hewitt, June 21 on flowers of *Cornus paniculata*. Woodruff. (Jour. N. Y. Soc., Mar., 1915.)
- Sphenophorus solitaris**, Whitesbog, July 16. H. B. Scammell.

Order LEPIDOPTERA.

- Pachnobia salicarum** Walker. Passaic Park, April, 1914. M. H. Mead.
- Xylomiges dolosa** Grote. Passaic Park, April 24, 1914. M. H. Mead.
- Euharveya carbonaria** Harvey. Passaic Park, April 7, 1914. At light. M. H. Mead.
- Catocala innubens** Gn. var. *hinda* French. Passaic Park. M. H. Mead.
- Notolphus antiqua** Linn. Rutherford, on roses in nursery. H. B. Weiss.
- Tornos scolopacinarius** Gn. Irvington, August 15, 1914. F. Lemmer.
- Sesia rhododendri** Beutm. Somerville, August, 1914. Larva in rhododendron stem. H. B. Weiss.
- Diathrausta daeckaealis** Haimbach. Browns Mills Jc., June 22, 1907. E. Daecke. (Ent. News, Vol. 26, No. 7.)
- Evetria buoliana** Schiff. Somerville (U. S. Bur. Ent. Bull. 170). Rutherford, May 12, 1915. In *Pinus mughus*. H. B. Weiss. The European pine shoot moth.
- Epagoge lycopodiana** Kearf. Pemberton, August 25, September 23, October 7, sweeping cranberry bog. H. B. Scammell & H. K. Plank.
- Zelleria haimbachi** Busck. Wenonah. Bred from short needle pine. F. Haimbach. (Proc. Wash. Soc., June, 1915.)

- Dichomeris vacciniella** Busck. Pemberton. Bred from cranberry.
H. B. Scammell. (Proc. Wash. Soc., June, 1915.)
- Symmoca novimundi** Busck. Montclair. W. D. Kearfott. (Proc. Wash. Soc., June, 1915.)
- Stenoma algidella** Wlk. Whitesbog, May 26, 1914. Adult resting on cranberry vine. H. B. Scammell.
- Coleophora limosipennella** Dup. Hackensack, summer of 1914. H. B. Weiss. Case bearer on elm.
- Coleophora laricella** Hbn. Rutherford, on larch. H. B. Weiss. The larch case bearer.
- Anaphora busckella** Haimbach. Jamesburg, July 4. Haimbach. (Ent. News, Vol. 26, No. 7.)
- Urophora tephrosinella** Dyar. Woodbine, Sept. 20, 1914. Larvae in seed pods of sand vetch (*Cracca virginiana*). H. B. Weiss.

Order HYMENOPTERA.

- Kaliosysphinga ulmi** Lund. Westfield, summer of 1914. H. B. Weiss. Leaf miner of elm.
- Rhodites mayeri** Schl. New Brunswick, J. B. Smith (Bt.) (Bull. Brook. Soc., Dec., 1914.)
- Stigmus conestogorum** Roh. New Brunswick, mid-summer. C. H. Richardson.
- Oxylabis bifoveolatus** Brues. Snake Hill. (Canad. Ent., April, 1904.)
- Itoplectis conquisitor** Say. Browns Mills, Sept. 24, 1914. Bred from *Peronea minuta* Rob. H. B. Scammell.

Order DIPTERA.

- Prosimulium notatum** Mall. Pemberton, April 22. H. B. Scammell.
- Proctacanthus nigriventris** Macquart. New Jersey, H. S. Harbeck. (Annals. Ent. Soc. Amer., vol. 4, No. 2.)
- Aphiochaeta iroquiana** Mall. Pasadena, October 2, 6, 7. Bred from grasshopper. H. K. Plank.
- Pipiza albopilosa** Will. Palisades, May 10. Osburn. (Jour. N. Y. Soc., vol. 22, p. 336.)
- Leptocera palliceps** Johnson. Clementon, May 12, 1899. (Psyche, vol. 22, p. 22.)
- Phytomyza aquifolii** Gour. Rutherford. Leaf miner in English holly. Has also been taken on holly imported from Holland. H. B. Weiss.
- Monarthropalpus buxi** Lab. Peapack, July, 1914. Boxwood leaf miner.

Spring Orthoptera found on the Islands in the Vicinity of Charlotte Harbor, Florida.

By MORGAN HEBARD, Philadelphia, Pa.

In May, 1915, the author was able to investigate a number of localities in this region¹. The work covered only a brief period, but in that time the various environmental conditions of these islands were, in several cases, thoroughly investigated. The material, 216 specimens, representing forty-five species, is in the collection of the author.

HAMMOCK.

Scarcely any "hammock" jungle condition was to be found on these islands. One small area, however, on the north end of Captiva Island was examined, where, in the heavy scrub, occasional gumbo limbo (*Bursera simaruba*) and other of the typical trees of this environment were found. Scarcely any Orthoptera were obtainable, probably due mainly to the dilute condition of this element, the surrounding groves of cabbage palmetto (*Sabal palmetto*) proving almost wholly unproductive and nearby extensive sandy stretches of short grass revealing only a few of the more ubiquitous forms. On one tree (*Exothea paniculata*), scarce in this hammock growth, a single specimen of *Oligacanthopus prograptus* was found, while from nearby bushes a specimen of *Cryptoptilum trigonipalpus* and of *Cyrtoxipha gundlachi* was beaten.

LIVE OAK GROVES.

Useppa Island is in part considerably elevated and on this ridge are found numerous live oaks (*Quercus virginiana*) and cabbage palmettoes (*Sabal palmetto*). This area is comparable with the oak groves on the borders of the hammock at Miami. Few Orthoptera, and only well known species, were found during the day, but at night *Pyrgocorypha uncinata* was to be heard everywhere in the tops of the palmettoes and

¹ See J. W. Harshberger for map of this region with particular reference to botanical conditions. Trans. Wagner Free Inst. Sci., Phila., xii (1915.)

occasionally in other trees and bushes, while on the ground *Hapithus agitator quadratus* was found and in a wild grape vine a single specimen of *Tafalisca lurida*. This locality in the autumn would be far more productive, as indicated by the numerous immature examples of various species of Orthoptera present in May.

PINE WOODS.

On Pine Island, a large flat area of pine woods (*Pinus caribaea*), with low undergrowth, the dominant plants of which are saw palmetto (*Serenoa serrulata*) and wire grasses (*Aristida* sp.), was twice visited. In this area the Orthoptera were found to be very similar to those found in the pine woods (*Pinus caribaea*) about Miami, Florida. Of the species found here, however, *Macneillia obscura* was present in greater numbers, and was more general in distribution than at any locality we have previously visited. The presence of *Gymnoscirtetes pusillus* and *Falcicula hebardi*, not known previously from Southern Florida, is of particular interest in showing the incursion of a more northern influence than is found at Miami; at this locality, situated very near the extreme southern boundary of the distribution of the long-leaf pine (*Pinus palustris*).

MANGROVE SWAMPS.

Large areas of black mangrove (*Avicennia nitida*) were examined without success, both on Useppa and Pine Islands. In brief areas of red mangrove (*Rhizophora mangle*), bordering Useppa Island and forming the dense covering of several small adjacent islands, nothing was found, though at the former locality a small colony of *Orocharis gryllodes* and occasional individuals of *Pyrgocorypha uncinata* were to be heard every night.

SALT MARSHES.

No salt marshes were to be found on the borders of the islands visited. Such areas have, in the spring, proven almost wholly unproductive of Orthoptera in southern Florida.

SEA BEACHES.

As on Biscayne Bay, sandy beaches were found on the seaward margins of the outer islands. On these *Trimero-tropis acta* was locally not scarce, and back of these on the sand *Scirtetica marmorata picta* was local and few in numbers, much as on Biscayne Bay.

The following list cannot be considered in any way complete for the forms present in this region in the spring, but will serve to indicate the majority of the species to be found on these islands at this time.

BLATTIDAE.

Ischnoptera uhleriana fulvescens Saussure and Zehntner. Useppa Id., Fla., V, 17, 1915 (H.), 1 juv. ♀.

Eurycotis floridana (Walker). Useppa Id., Fla., V, 19, 1915 (H.; on ground in heavy tangle after dark), 1 ♀.

MANTIDAE.

Stagmomantis carolina (Johannson). Pineland, Pine Id., Fla., V, 18, 1915 (H.), 1 very small juv. ♂.

PHASMIDAE.

Manomera tenuescens (Scudder). Pineland, Pine Id., Fla., V, 20, 1915 (H.; rank vegetation near sand dunes), 1 ♂, 1 juv. ♂.

Manomera brachypyga Rehn and Hebard. Pineland, Pine Id., Fla., V, 18 and 20, 1915 (H.; occasional in undergrowth of pine woods, locally moderately numerous in low bayberry bushes (*Myrica cerifera*)), 12 ♂, 6 ♀, 4 juv. ♂, 1 juv. ♀.

This series and the specimens of *M. tenuescens* are of particular interest, taken with other material before us, in proving that the proportions of the abdominal segments, which so readily separate adults of the two species, are of equal value in separating immature examples in the later instars. Moreover, the material shows that, in the immature condition, the males of both species have straight, delicate in structure and pilose cerci. All of the immature specimens in the present series are in the instar preceding maturity.

In the present series of adults the extremes of length are: males, 66.3 to 74.8; females, 82.2 to 92.8 mm. The males average much smaller than the typical males from Homestead, Fla. (87.4 to 88.5 mm.), but appreciably larger than a male from San Pablo, Fla. (69.6 mm.).

ACRIDIDAE.

Nomotettix cristatus floridensis Hancock. Pineland, Pine Id., Fla., V, 18, 1915 (H.; juv. very scarce in undergrowth of pine woods), 1 juv. ♂.

Neotettix femoratus (Scudder). Pineland, Pine Id., Fla., V, 18 and 20, 1915 (H.; occasional in undergrowth of pine woods), 7 ♂, 5 ♀.

Neotettix bolteri Hancock. Pineland, Pine Id., Fla., V, 18 and 20, 1915 (H.; undergrowth of pine woods), 1 ♂, 1 ♀.

Radinotatum brevipenne peninsulare Rehn and Hebard. Pineland, Pine Id., Fla., V, 18 and 20, 1915 (H.; moderately numerous in undergrowth of pine woods), 11 ♂, 9 ♀.

Mermiria intertexta Scudder. Useppa Id., Fla., V, 17, 1915 (H.; grasses on shore), 1 juv. ♀.

Macneillia ⁽²⁾ **obscura** (Scudder). Pineland, Pine Id., Fla., V, 18 and 20, 1915 (H.), 36 ♂, 19 ♀.

This insect, usually so rare and local, was found in small numbers everywhere throughout the undergrowth of the pine woods and the large series taken was easily secured. Though individuals in this series are not as highly colored as is often the case, the females particularly exhibit a great variety of coloration. Of the entire series but two females are marked with green, this color phase rarely developing in the present species.

Amblytropidia occidentalis (Saussure). Pineland, Pine Id., Fla., V, 18, 1915 (H.; undergrowth of pine woods), 1 ♀. Captiva Id. at Captiva Pass, Fla., V, 19, 1915 (H.; in hammock), 1 ♂.

Orphulella pelidna (Burmeister). Pineland, Pine Id., Fla., V, 18 and 20, 1915 (H.), 2 ♂, 1 ♀. Captiva Id. at Captiva Pass, Fla., V, 19, 1915 (H.; common in short grass areas), 2 ♂, 1 ♀.

² Caudell, adhering strictly to a one letter rule, has recently attempted (Proc. U. S. N. M., xlix, p. 28 (1915.)), to resurrect McNeill's *Pedeticum* for this genus, preoccupied by *Pedeticus* of Laporte, and for this reason renamed *Macneillia* by Scudder. Caudell's action is unwarranted and if consistently followed would cause endless confusion. The matter has long been settled by Mammalogists and Ornithologists, the one letter rule being suppressed unless indicating different word derivations. At a time when the first glimmering of hope for nomenclatural stability, at least in certain groups, is beginning to dawn, we strongly object to changes of well-known names where the validity of such a change is either everywhere debatable or considered utterly incorrect by all but a very few.

Arphia granulata Saussure. Pineland, Pine Id., Fla. (H.; scarce in undergrowth of pine woods), 3 ♂, 2 ♀.

Chorthaga australior Rehn and Hebard, La Costa Id. at Boca Grande Pass, Fla., V, 18, 1915 (H.; low grasses near strand), 1 ♂, 1 brown juv. ♀. Pineland, Pine Id., Fla., V, 18, 1915 (H.; low grasses in field), 1 ♀. Captiva Id. at Captiva Pass, Fla., V, 19, 1915 (H.; few juv. in areas of short grass), 1 green juv. ♀.

Scirtetica marmorata picta (Scudder). South Boca Grand, Gasparilla Id., Fla., V, 18, 1915 (H.; sand grasses on shoreward border of beach), 1 ♂. La Costa Id. at Boca Grande Pass, Fla., V, 18, 1915 (H.; sand grasses near strand), 4 ♂, 3 ♀. La Costa Id. at Captiva Pass, Fla., V, 20, 1915 (H.; near strand), 2 ♂, 1 juv. ♀. Captiva Id. at Captiva Pass, Fla., V, 19, 1915 (H.; on strand), 2 ♂.

One male from La Costa Island at Captiva Pass is exceptionally pale, being drab in general coloration, with characteristic dark markings weak and greatly reduced.

- **Psinidia fenestralis** (Serville). Pineland, Pine Id., Fla., V, 20, 1915 (H.; sandy area near dunes), 1 juv. ♀. Captiva Id. at Captiva Pass, Fla., V, 19, 1915 (H.; sandy area of short grass), 1 ♀.

Trimerotropis acta Hebard. South Boca Grande, Gasparilla Id., Fla., V, 18, 1915 (H.; numerous on broad sandy area, about sand grass and a local fleshy-leaved beach plant, *Sesuvium portulacastrum*), 8 ♂, 9 ♀, 3 juv. ♀. La Costa Id. at Boca Grande Pass, Fla., V, 18, 1915 (H.; few in much restricted area like the above), 3 ♂, 3 ♀, 1 juv. ♂, 1 juv. ♀. La Costa Id. at Captiva Pass, Fla., V, 20, 1915, (H.; in small numbers on strand, particularly about a beach plant, *Sesuvium portulacastrum*), 5 ♂, 3 ♀, 1 juv. ♂, 1 small juv. ♀.

The present series is in every way typical, but one female from South Boca Grande has the tegmina unusually suffused (army brown marked with bone brown); the characteristic weak darker markings of the species are, however, as distinct as is usual.

Series from different beaches of slightly different shades of color show an average correspondingly slight difference in general coloration; the whitish suffusion, characteristic of the species, however, remaining the same. Thus, in the present series, those from South Boca Grande show weak cinnamon browns (light pinkish cinnamon to wood brown); from La Costa Island at Boca Grande Pass, weak ochraceous browns (light ochraceous buff to weak sayal brown), and from La Costa Island at Captiva Pass, drabs (pale drab gray to avel-

laneous). The wing coloration and width of band are as in the typical series.

Romalea microptera (Beauvois). Pineland, Pine Id., Fla., V, 18 and 20, 1915 (H.), 1 juv. ♂.

Schistocerca serialis (Thunberg).

Schistocerca americana of authors.

Useppa Id., Fla., V, 17 to 19, 1915 (H.; moderately numerous in scrub), 2 ♂, 1 ♀.

Schistocerca damnifica calidior Rehn and Hebard. Pineland, Pine Id., Fla., V, 18 and 20, 1915 (H.; scarce in undergrowth of pine woods), 3 ♂.

Gymnoscirtetes pusillus Scudder. Pineland, Pine Id., Fla., V, 18 and 20, 1915 (H.; few small colonies of juv. in undergrowth of pine woods), 1 juv. ♂, 2 juv. ♀.

The southernmost previously known record for this species was Lakeland, Fla.

Eotettix signatus Scudder. Pineland, Pine Id., Fla., V, 18, 1915 (H.; damp spot in undergrowth of pine woods), 1 very small juv. ♀.

Melanoplus puer Scudder. Pineland, Pine Id., Fla., V, 18 and 20, 1915 (H.; widely distributed through undergrowth of pine woods, but never in colonies), 15 ♂, 11 ♀, 3 juv. ♀, 1 very small juv. ♀.

This series averages about the size of the smallest individuals in the large series before us from Miami, Fla.; distinctly larger than material from Lakeland, Fla. The increase southward in size of the present species is very rapid, the dissimilarity of the extremes remarkable.

Paroxya clavuligera (Serville).

Paroxya floridana of authors.

Useppa Id., Fla., V, 17, 1915 (H.; juv. occasional in low vegetation of red mangrove swamp), 1 juv. ♀.

Aptenopedes sphenarioides clara Rehn. Useppa Id., V, 17, 1915 (H.; juv. occasional in low vegetation of red mangrove swamp), 1 juv. ♂. Pineland, Pine Id., Fla., V, 18 and 20, 1915 (H.; only one adult seen, juv. numerous in undergrowth of pine woods), 1 ♂, 1 juv. ♀.

Aptenopedes aptera Scudder. Pineland, Pine Id., Fla., V, 18 and 20, 1915 (H.; only two adults seen, juv. numerous in undergrowth of pine woods), 2 ♂.

TETTIGONIIDAE.

Arethaea phalangium (Scudder). Pineland, Pine Id., Fla., V, 18 and 20, 1915 (H.; very scarce in undergrowth of pine woods), 2 ♂, 1 ♀.

The capture of adults of this rare and striking species in May, adds to the weight of the opinion we have held, that the species appears in greatest numbers considerably earlier than do the majority of the species of this family and that by August only occasional survivors are to be found, over all or the greater portion of the insect's distribution.

Scudderia texensis Saussure and Pictet. Pineland, Pine Id., Fla., V, 20, 1915 (H.; undergrowth of pine woods), 1 ♀, 1 juv. ♀.

Amblycorypha floridana floridana Rehn and Hebard. Pineland, Pine Id., Fla., V, 20, 1915 (H.; in tangle of rich vegetation near dunes), 1 ♂.

Belocephalus sabalis Davis. Pineland, Pine Id., V, 17 and 20, 1915 (H.; juv. in moderate numbers in undergrowth of pine woods), 1 juv. ♂, 4 juv. ♀.

Two of the immature females are being bred. They are active only at night and are thriving on various green vegetable matter, lettuce appearing to be most relished. The growth of the species is exceedingly slow.

Pyrgocorypha uncinata Harris. Useppa Id., Fla., V, 19 and 20, 1915 (H.), 4 ♂.

This species was heard everywhere after dark on Useppa Island, singing in the tops of cabbage palmettoes (*Sabal palmetto*), where the insects were usually located in the berry clusters. A few were also to be heard in bushes, in the undergrowth of the heavier tangles and in mangroves on the edge of the swamp.

The song is very loud, the notes rapid, rhythmic and somewhat metallic in timbre, *dsit-sit-sit-sit-sit-sit-dsiit-sit-sit-sit*, these sounds produced at a rate of twenty-two to five seconds. While singing, the males were very wary when approached, usually ceasing their song even at a distance of fifteen or more feet. Locating the individual was, however, alone difficult, as the insect was found to be slow in its movements, clinging tenaciously to its support and easily seized if approached cautiously.

Conocephalus gracillimus (Morse). Pineland, Pine Id., Fla., V, 18, 1915 (H.; very scarce in undergrowth on edge of pine woods), 1 ♀, 1 juv. ♂.

Odontoxiphidium apterum Morse. Pineland, Pine Id., Fla., V, 18 and 20, 1915 (H.; adults very scarce, juv. numerous in undergrowth of pine woods), 2 ♂, 1 ♀, 2 juv. ♂, 3 juv. ♀.

Atlanticus glaber Rehn and Hebard. Pineland, Pine Id., Fla., V, 18, 1915 (H.; in undergrowth of pine woods, found occasionally on first visit but none seen on the second), 1 ♂, 5 ♀.

GRYLLIDAE.

Ellipes minuta (Scudder). Pineland, Pine Id., Fla., V, 20, 1915 (H.), 1 ♂, 3 juv.

Cryptoptilum trigonipalpus Rehn and Hebard. Captiva Id. at Captiva Pass, Fla., V, 19, 1915 (H.; beaten from bayberry (*Myrica cerifera*), in hammock), 1 juv. ♂.

Oligacanthopus prograptus Rehn and Hebard. Captiva Id. at Captiva Pass, Fla., V, 19, 1915 (H.; under bark of tree (*Exothea paniculata*), in hammock), 1 juv. ♀.

This extraordinary species was previously known only from the type locality, Miami, Fla.

Nemobius ambiguus Scudder. Pineland, Pine Id., Fla., V, 18 and 20, 1915 (H.; common in undergrowth of pine woods), 1 ♂, 3 ♀.

Gryllus assimilis Fabricius. Pineland, Pine Id., Fla., V, 20, 1915 (H.; common in pile of decaying grapefruit), 1 ♀.

This specimen is a strongly marked individual of the *scudderianus* variant.

Falcicula hebardii Rehn. Pineland, Pine Id., Fla., V, 18 and 20, 1915 (H.; undergrowth of pine woods), 1 ♂, 1 ♀.

This species was previously not known in Florida south of Gainesville.

Cyrtoxipha gundlachi Saussure. Captiva Id. at Captiva Pass, Fla., V, 19, 1915 (H.; beaten from bayberry (*Myrica cerifera*), in hammock), 1 juv. ♂.

Hapithus agitator quadratus Scudder. Useppa Id., Fla., V, 19, 1915 (H.; low vegetation on ground under oaks, heard occasionally after dark), 1 ♂. Captiva Id. at Captiva Pass, Fla., V, 19, 1915 (H.; beaten, in hammock), 1 juv. ♀.

Orocharis gryllodes (Pallas).

Orocharis saulcyi of authors.

Pineland, Pine Id., Fla., V, 18 and 20, 1915 (H.; juv. not scarce in undergrowth of pine woods), 2 very small juv.

The species was heard, but not taken, on Useppa Island.

Tafalisca lurida Walker. Useppa Id., Fla., V, 19, 1915 (H.; feeding on wild grape flowers on vine, after dark), 1 juv. ♂.

This is a large immature specimen (length 21.4 mm.); the tegminal and wing pads are, however, very short, (length of wing pad 2.9 mm.).

vance here presented will do away with most such difficulties coleopterists experience. After the collector becomes acquainted with the apparatus, it will render itself indispensable to him. As everyone knows, collecting small Coleoptera is a difficult task because most of them are swift runners. Many rare specimens are lost for this reason, and even if captured are often injured. This suction-pump collector is especially adapted for class studies, because it is easily carried in the vest pocket and because it enables one to observe the specimens at the time of capture.

The apparatus is shown in the accompanying figures: *A* is a cork with center hole; *B*, a glass tube four inches long, one and one-eighth of an inch in diameter, and one-eighth of an inch thick; *C*, cork of type similar to *A*; *D*, glass tubing bent in S-shape; this curve is very important because it destroys a straight path for insects and dust; *E*, glass tubing one-fourth of an inch in diameter with enlarged edges on both sides of the cork; *F*, rubber tubing which is of the desired length, (usually 20 to 30 inches), with mouthpiece on one end, the other is slipped over the glass near the cork; *G*, short piece of rubber tubing which prevents the glass tube from breaking when insects are collected on or around solid objects and in crevices; *H*, silk netting which is stretched over the end of the tube and tied with thread sealed with wax in order to prevent it from fraying; this netting prevents the entrance of dust particles into the tube.

The end of the rubber tube *G* is placed near the objects desired, such as small beetles, shells, or any small specimens, which are then drawn into the main chamber through the glass tube *D*, by the suction which is created by a sharp inhalation at the end of the rubber tube *F*.

Specimens in the main chamber can be emptied into a cyanide jar by removing the bottom cork *C*, which is only partly pushed into the tube for about one-third of its length.

A Correction (Hym.).

Both specimens of *Mutilla slossonae* Fox mentioned by me, Ent. News, xxvi, p. 37, January, 1915, are males.—GEO. M. GREENE, Philadelphia, Pa.

Phycitinae of San Diego, California, and Vicinity, with Descriptions of new Species (Lep.).

By W. S. WRIGHT, San Diego, Cal.

San Diego lies in the extreme southwestern corner of the great "Southwest," which Mr. Hulst thought should produce many species of Phycits. That his ground was well taken is proven beyond a doubt by the many discoveries of recent years. In this paper I do not presume to have given all the species of this locality, as the field has as yet been but poorly covered, and there is little doubt but that as more careful and complete collections are made many new species will be added. Most of the species listed here were taken in the immediate neighborhood of San Diego, those taken elsewhere are noted in the text. La Puerta, which has produced some very interesting forms, is a small valley about one hundred miles from the coast on the edge of the desert, and it is rather to be expected that the fauna of that region will partake somewhat of the character of the Arizona fauna, lying, as it does, on the opposite side of the same desert. Also our proximity to the Mexican border is sure to discover many Mexican forms. Both of these facts suggest future studies when more extensive collections have been made.

This paper lists thirty-six species, two of which are described as new. No attempt is made to make the sequence logical, but it is hoped that the list, together with the notes, will be of interest to many who may be interested in this particular group.

In the preparation of the paper I have had access to the rather extensive collection of Mr. George Field, whose tireless work in gathering as complete a local collection as possible is commendable; in fact many of the species here named are not in my own collection at all. I also acknowledge help from Dr. Harrison G. Dyar.

1. *Myelois puertella* Dyar. One specimen, a cotype, Coll. Geo. H. Field, La Puerta, Cal., July. Type in National Museum. A very pretty and well marked species.

2. *M. culinginoidella* Dyar. Flies abundantly during June, July

and August. It frequents the low scrub oaks that are so plentiful in the canyons near the coast. It might easily be confused with *Alpheias denticulalis* Barnes and McDunnough as it has the same general color and habit; it is easily distinguished, however, in a large series.

3. *M. alatella* Hulst. Seven specimens in my cabinet. Six of these were taken in March and one, an exceptionally dark and well marked specimen, is labeled "Febr. 13." I do not find any note of this occurrence nor do I recall the circumstance, but it was probably captured, like all the rest, at light.

4. *Tacoma submedianella* Dyar. One specimen, a cotype, from La Puerta, Cal. The specimen is considerably worn but easily recognizable. It has the characteristic desert appearance. Taken at light in July. Type in National Museum.

5. *Salebria yumaella* Dyar. One specimen, Coll. Geo. H. Field, Jacumba (on the edge of the desert about ninety miles east from San Diego and near the Mexican border). The species is a decidedly interesting one. Type in National Museum.

6. *S. ochripunctella* Dyar. Four specimens, San Diego, October and November. A sombre-hued species that is conspicuous only for the ochre-colored dot that suggests its name. Types in National Museum.

7. *Pasadena constantella* Hulst. Four specimens collected at La Puerta in July. This seems to be a distinctly desert species.

8. *Elasmopalpus lignosellus* Zeller. Two specimens labeled October, 1907. San Diego, Cal. An interesting little species apparently quite local in habit. These four specimens are the only ones taken in ten years' collecting.

9. *Epischnia boisduvaliella* Guenée. Five specimens, San Diego, February to May. A beautiful, not very common species. A single specimen stood in my cabinet for several years and the other four were but recent captures.

10. *Megasis edwardsalis* Hulst. Eight specimens taken at light in January.

This is one of the largest species taken here. Its flight is limited to a few weeks, probably not more than three or four. It is quite variable as to expanse and color. Some specimens are light gray and others appear to be almost black. The ordinary marks are all very indistinct.

11. *Hypochalcia truncatella* n. sp.

Venation, typical. Expanse, 23 to 25 mm.

Primaries broad, termen rather squarish. Reddish ochreous at base of wing and in the outer field. Median area ochreous with a heavy

sprinkling of black scales. Pale ochreous streaks on vein 1, the median, and a broader streak on the costa, all dusted with black scales. Basal line distinct, pale ochreous, remote, perpendicular to inner margin, broadly toothed inwardly on vein 1 and on the median, a dark streak on the costa and a blackish spot on the angle of the tooth. Outer line concolorous, distinct, parallel to outer margin, subcrenulate, rather distant from margin, inwardly bordered by a narrow dark line more prominent on the costa. Terminal space gray, more or less suffused with reddish ochreous. Terminal line black. Blackish streak at apex. Discal dots distinct.

Hind wings fuscous, darker on outer margin and at the apex.

Fringes lustrous, concolorous with the wings.

Thorax reddish ochreous, palpi fuscous, darker at the tip. Abdomen gray and more or less distinctly annulate with lighter color.

Cotypes, 3 males, one of which is in Coll. Geo. H. Field, and two in my own. The right wings of one specimen are mounted in balsam as a microscopic slide and bear the number "12."

In general appearance the species is close to *Lipographis leoninella*, but may be distinguished by its broader wings and the squarish termen. The species seems to be not common, these three specimens being the total catch of two collectors in ten years.

12. *Lipographis leoninella* Packard.

Some years ago the late Mr. Frank Merrick labeled two specimens for me, one as *L. leoninella*, and the other as *L. humilis*. They stood thus in my cabinet until recently when I was led to make a close study of a series consisting of about 50 specimens. The result of this study has convinced me that *humilis* does not occur in San Diego. *Leoninella* is so plentiful that at times it becomes a nuisance, fairly clogging the traps. I have often taken as high as 60 specimens in a trap in a single night.

13. *Etiella schisticolor* Zeller. I have but one specimen of this fine species taken at Witch Creek, in the mountains, about forty miles back from the coast.

14. *Sarata umbrella* Dyar. I have two specimens, cotypes, neither in very good condition, and Mr. Field has three fine specimens in his collection. These five, with the two types in the National Museum, are all that have been captured in this vicinity to date.

The species flies only near the shore of the ocean and the larvae probably live on some of the "salt grasses" growing in the swampy places. It is an interesting species and quite conspicuous owing to the depth of color—deep reddish ochre with shades approaching white.

15. *Melitaria fernaldalis* Hulst (?). A single specimen in the collection of Geo. H. Field, San Diego, October.

I have never seen another specimen of this species. It is quite large and rather inconspicuously marked. This particular specimen looks much like the darker specimens of *M. edwardsalis*.

16. *Yosemitia graciella* Hulst. Three specimens in the collection of Geo. H. Field, La Puerta, Cal., July. A fine species and has the typical desert appearance.

17. *Yosemitia maculicula* Dyar. Four specimens in the collection of Geo. H. Field, one a cotype. March and June, San Diego. Seven specimens in my own collection. A rather neat little species. The earlier captures seem to be somewhat darker in color.

18. *Euzophora aeglaeella* Rag. Mr. Field has one fine specimen of this very interesting species which seems to be quite rare in this locality.

19. *Euzophora fuscomaculella* n. sp.

Venation typical.

Antennae but slightly bent above the base, lamellated tufts in the bend more or less appressed, beyond ciliate, outer one-third slightly setose on both sides.

Palpi. Labial palpi ascending, slender, scarcely exceeding the head, third member half the second, dark fuscous, white annulus at second joint. Maxillary palpi distinct, rather heavily scale-tufted at the tip.

Primaries.—Expanse, 28 mm., light gray, well sprinkled with fuscous scales on the disk and outer third, dusted with black scales on outer costal region, washed with fuscous along the inner margin, nearly straight on the costa, a large irregular dark fuscous spot near the base. Basal line moderately remote, white, a rather deep sinus outwardly near the middle, strongly bent inwardly on the median, narrowly margined with fuscous inwardly below, and a broad dark fuscous spot costally on the outer side. Outer line pale, indistinct, a sharp tooth inward on the subcostal vein, wavy dentate below. Discal spots coalescing to form a dark lunule, the lower limb extending towards the outer angle and becoming lost in a pale fuscous shade; a whitish streak in the middle field just above the discal fold. A terminal row of blackish dots.

Secondaries.—Shiny white, semi-transparent, immaculate save at the apex.

Beneath, primaries pale fuscous gray; secondaries as above.

Abdomen tufted, annulate with white at the joints.

Described from two males in my own collection. Taken at light, May, 1909, San Diego, Cal.

The species is quite different from anything I have ever seen, and since these are the only specimens I have taken in some ten year's collecting in this locality, I conclude that it is quite rare.

20. *Vitula edwardsii* Packard. Mr. Field has one specimen bearing this label; the condition of the specimen makes it quite impossible to tell whether it is correctly named without good comparative material, which is not at hand.

21. *Vitula serratilineella* Rag. Two specimens which I take to be this species were captured at light in June. A third specimen gave up its wings for a slide.

22. *Heterographis morrisonella* Rag. Two specimens from La Puerta collected by Mr. Field in July. A third specimen bearing a San Diego date label was identified for me some years ago by the late Mr. Frank Merrick. Its rubbed condition, however, makes it doubtful. It is kept here for the present and hopes for future captures still linger.

23. *Hulstia undulatella* Clem. Eleven specimens of this pretty little species grace my cabinet. It is awing from April to October and scarcely a night passes that the traps do not entertain at least one as a guest.

24. *Honora dotella* Dyar. I believe the types of this species are in the National Museum. My first capture was near the seashore among the dunes; later I took several specimens some miles back in the hills. March and July.

25. *Homeosoma striatellum* Dyar. Mr. Field's collection, San Diego, March.

26. *Homeosoma mucidellum* Rag. Something like *Lipographis leoninella* as to numbers and a nuisance in the traps. I have thrown away enough good specimens to stock several museums and still have a large drawer full.

27. *Ephesiodes gilvescentella* Rag. Five specimens which were compared with a specimen in Mr. Field's collection that was named by Dr. Dyar. My specimens were collected at La Puerta by Mr. Frank Stephens and as far as I can see they are identical with *E. nigrella* except in alar expanse, which might be easily due to the desert conditions.

28. *Ephesiodes nigrella* Hulst. This is a very common species near the coast and is awing most of the year.

29. *Ephestia nigrella* Hulst. The only specimen I have ever seen is one from La Puerta belonging to Mr. Field. Date of capture, July.

30. *Zophodia stigmatella* Dyar. Many specimens from San Diego. A cotype is in Mr. Field's collection. Types in the National Museum.

At first glance one might easily take this to be *Yosemitia maculicula* Dyar; the outer third of the costa, however, is less arched and the spots are more distinctly separate.

31. *Zophodia fieldiella* Dyar. Types in the National Museum. One cotype in Mr. Field's collection.

A fairly well marked species, but may be easily confused with *Yosemitia graciella* Hulst. It is smaller, however, and the dark discal streak is curved downward, also there is somewhat more whitish. La Puerta, Cal., July.

32. *Eurythmia lignidorsella* Rag. Have fourteen specimens which I take to be this species.

33. *Valdivia mirabellicornella* Dyar. Eight specimens of this fine species grace my cabinet. Two more are referred here but are doubtful. A cotype is in Mr. Field's collection and if the types are not much better specimens, it seems to me that a redescription from good material might be profitable.

The species is quite variable, one perfectly fresh specimen is almost devoid of all marks, another is so suffused with black scales as to appear quite gray, losing almost entirely its ochreous color; in others the spots and streaks are strongly accentuated. It was almost impossible for me to be sure from the original description that my identification was correct even with a cotype for comparison.

34. *Martia arizonella* Rag. Three fairly good specimens taken at La Puerta in July. The species, like all others from this locality, has the peculiar "desert look."

35. *Petaluma inspergella* Rag. Four specimens, of which two are labeled "Jacumba" and two "San Diego." Jacumba is close to the Desert and very near the Mexican line. Again we have the "desert look." The species is almost immaculate.

36. *Bandela cupidinella* Hulst. Another almost immaculate species of which I have but four specimens.

That more systematic collecting will produce many more species from this locality seems altogether probable. The hills about the city are covered with the *Adenostoma*, which seems to be the breeding ground for many species. The low growing oaks, the varieties of *Rhus* and of *Ceanothus* are also good producers. Farther back in the hills are to be found many other shrubs and undergrowth that seem to abound in members of this group. Then, too, the length of the season, January first to December thirty-first on the coast, and from March to December back in the higher altitudes away from the coast, together with the lack of local collectors, makes it quite reasonable to suppose that the Phycit student could spend many profitable hours in this neighborhood.

A New Dragonfly Genus of the Legion *Protoneura* (Odonata).

By E. B. WILLIAMSON, Bluffton, Indiana.

Recently, in sorting over the South American Agrionines collected by B. J. Rainey, L. A. Williamson and myself in 1912, I discovered two males unfortunately overlooked when I studied the genus *Protoneura* (sens. lat.).*

PHASMONEURA new genus.

Closely related to *Psaironeura*. Colors dull; abdomen long and slender. Runs out in key page 620*, to *Psaironeura*. For *Psaironeura*, following c^1 under b^2 , read as follows:

M2 in front wing arising at seventh postnodal; in hind wing at fifth.

Phasmoneura

M2 in front wing arising proximad to seventh postnodal, usually at the sixth or more proximad; in hind wing at the fourth or proximad *Psaironeura*

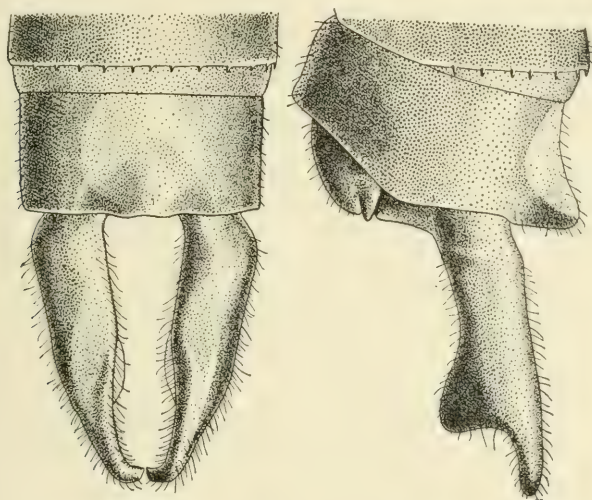
The subdivisions under c_1 under b_2 remain unchanged, all relating to species of *Psaironeura*.

Cu_1 in the front wings is very close to the wing margin, terminating at the descending cross vein in three wings, while

*Notes on Neotropical dragonflies or Odonata, Proc. U. S. Nat. Mus., Vol. 48, May 12, 1915, pp. 616-636.

in one wing it meets the margin proximad to the cross vein about midlength of the second postquadrangular cell; in the hind wings, on the other hand, Cu1 is more widely separated from the wing margin and terminates against the descending cross vein which is angled at that point, with the posterior portion deflected apically.

Rs is distal to the subnodus about the thickness of the vein or a little more; M3 proximal to the subnodus, the two (Rs and M3) narrowly separated at their origin (as in *Psairo-neura* and *Epipotoneura* as contrasted with *Protoneura* and *Epipleconeura*).



Apex of Abdomen, *Phasmoneura olmyra* n. sp., ♂, dorsal and left profile views.

M2 in front wing at seventh postnodal; in hind wing at fifth; M1a in front wing at tenth postnodal; in hind wing at eighth. In both specimens there is no variation in the position of M2 and M1a. M3 ending distad to the level of the stigma; M4 under stigma.

Three antenodal costal spaces subequal. Second antenodal just proximal to the arculus. Cubito-anal cross vein distal to the first antenodal about one-third the second antenodal costal space. Rs and M3 distinct but closely approximated at first

descending cross vein. Upper limb of arcus scarcely one-half length of lower limb.

Stigma black, regular, one and one-fourth times as long as wide, covering one cell or less (in one left front wing more than one cell, but no variation in the stigma itself).

Male appendages: Superiors long, slightly shorter than abdominal segment 9 and not quite twice as long as 10; inferiors short rounded tubercles, each with a short lateral spine.

Type, Phasmoneura olmyra, n. sp.

***Phasmoneura olmyra* n. sp.**

Abdomen, 32 mm.; hind wing, 20 mm. Proportionate lengths of abdominal segments 1 to 10, as follows: $\frac{3}{4}$, $1\frac{3}{4}$, 6, $7\frac{1}{2}$, $7\frac{1}{2}$, 7, $5\frac{1}{4}$, $2\frac{1}{4}$, 1, $\frac{1}{2}$, appendages 4-5.

Labium pale, middle lobe deeply and broadly divided for nearly one-half its length; rear of head pale.

Genae pale yellow; labrum pale yellow, basal half black, the lower margin of the black stippled; anteclypeus yellow, bilobed medianly with black which is continuous with the black postclypeus; frons narrowly in front and medianly pale, stippled with black, remainder black or dark brown, more or less stippled adjoining the eyes; antennae dark brown, the second joint darker at its apex; vertex black with slight bluish or greenish reflections.

Prothorax black or dark brown, laterally with some pruinescence, an indefinite trace of a narrow pale area on the anterior edge of the front lobe and of a small median spot on each side of the posterior lobe; propleuron pale yellow.

Dorsum of thorax entirely dark brown or dull black with indefinite narrow streaks of rust color, the dark area reaching the humeral suture and, below, slightly posterior to it, this posterior border rust-colored and obscure; mesepimeron and mesinfraepisternum pale, apparently dull (or pale) blue with considerable pruinescence (on one side of one specimen the mesepimeron has a black blotch on more than its upper half; this black has a pattern that suggests it is due entirely to postmortem discoloration but the black looks like pigment); metepisternum darker, clearer blue, almost black in certain lights; metinfraepisternum pale yellow; metepimeron very pale blue, some black strippling along its anterior suture above, and near the posterior suture near its midlength; metasternum almost white.

Coxae and legs pale yellow; femora with stippled narrow dorsal lines, broader apically, shading out basally; indefinite brown stippled areas give an impression of rings or bands on the femora and tibiae, the darkest area at the apices of the femora; all joints with slight

brown; spines brown, short and not numerous, 5 or 6 on tibiae and 4 on the second and third femora.

Abdomen above black, narrowed basally on 1 to form a nearly equilateral triangular area; basal two-thirds of 9 dark rich blue, apex of 9, all of 10 and appendages black (in one specimen blue is not evident on 9 which is pruinose with a large rounded median pruinose spot on 10); sides of 1 and 2 extensively pale, almost white; a small basal spot of same color on 3 and a longer, ill defined inferior pale area subapically on the same segment, or the entire side below except the extreme apex pale; 4-6 similar but with the spots successively less conspicuous posteriorly, the subapical spot disappearing on 6, or with the pale the full length of each segment below except the apex, narrowing progressively from 4 to 6; 7 narrowly pale at base, encircling the segment, pale the entire length below except at extreme apex; 8 pale blue or yellowish basally, not reaching the apex where the black of the dorsum extends over the sides for one-fourth the length of the segment, but the black does not reach the extreme lower border; 9 similar to 8 but distinctly blue, the apical black slightly less extended than on 8; 10 and appendages black.

Appendages as figured. They are peculiar in the long *Heteragrion*-like form of the superiors, and the so-called rudimentary inferiors, which in this case alone so far as I know, unless *tenuissima* is an exception also, have a minute lateral spine.

Described from 2 males, Rockstone, British Guiana, B. J. Rainey, L. A. and E. B. Williamson, Feb. 1, 1912; in the writer's collection.

Three new Species of *Coccophagus*, Family Encyrtidae (Hym.).

By A. A. GIRAULT, Washington, D. C.

1. *Coccophagus magniclavus* new species.

Female.—Length, 1.00 mm. Deep orange yellow, the following parts black: Caudal half of parapsidal furrows, club, a small round spot in the middle of each parapside, apex (cephalad) of the much advanced axilla, suture along cephalic margin of scutellum, thorax transversely laterad of scutellum, propodeum except broadly across meson, immediate center of the occiput transversely and dorsal abdomen (but as the incisions sometimes show through, then the abdomen appears to be alternately striped white and black). Abdomen orange yellow at base transversely. Club blotched with yellowish. Pronotum black except laterad. Legs white; the fore wings hyaline; venation, pale yellow. Tip of abdomen above and ovipositor valves yellow.

Pedice! small, very slightly longer than wide, funicle 3 shortest of the funicle, somewhat longer than wide, 1 and 2 subequal, each about twice longer than wide, very much longer than the pedicel which is shorter than funicle 3; club twice wider than the funicle but shorter, its joints wider than long.

Stigmal vein linear, not long, more or less parallel with the marginal vein, without a distinct knob. Marginal vein a little longer than the submarginal. Marginal fringes of the fore wing short.

Scutum with many short black hairs, the scutellum with from four to six long ones.

The *male* is very similar. Ring-joint short.

Described from one male, six females reared from *Aleurochiton* species, Berlice, Demerara, British Guiana, March, 1913 (G. E. Bodkin).

Types. Catalogue No. 19343, United States National Museum, the above specimens on a slide.

2. ***Coccophagus mexicanus*** new species.

Female.—Length, 1.60 mm. In Howard's (1897) table of species runs to *californicus*, but differs in having the caudal tibiae black except at tip and the caudal coxae white, the middle tibiae lightly dusky above and so on. Differs from *albicoxa* Howard in having only the apex of scutellum lemon yellow, the abdomen coarsely scaly, the face sometimes yellow to the clypeus from a little below the vertex and between the eyes, the scape and pedicel yellowish (the pedicel dark above except at apex); from *howardi* Masi in the coloration of the legs.

Fore wings slightly stained along under the marginal vein, the stigmal vein minute. Tarsi white. Black with the apical border of scutellum lemon yellow and the hind coxae white (the other yellow markings as noted). Occipital border of vertex yellow.

Scutum with many minute setigerous punctures. Thorax microscopically scaly. Funicle 1 somewhat longer than wide, longer than the pedicel, 2 and 3 subequal, each a little longer than wide. Funicle subcompressed, the pedicel nearly as long as funicle 3. Club not enlarged, its joints not long.

Described from two females, labeled "Porto Bello, Panama, March 18, 1911. Busck. On a fig lecanium."

Type.—Catalogue No. 19344, United States National Museum, the two specimens on tags.

3. ***Coccophagus coxalis*** new species.

Female.—Like the preceding, but the head is all black, the funicle joints all somewhat longer, the apical half of the scutellum, the post-

scutellum and the propodeum (except along meson narrowly and the cephalic margin) lemon yellow, the black of the scutellum running a little farther caudad at lateral margins. Scape yellow, also the pedicel except above at proximal half. Fore wings slightly more infuscated. Abdomen compressed.

Described from one female taken with *mexicanus*.

Type.—Catalogue No. 19345, United States National Museum, the female on a tag.

The species *coxalis* is close to *albicoxa*, but the yellow on the propodeum and scape and the different form of that on the scutellum seem to be characters sufficient to require distinction.

Argynnis diana (Lep.).

Dr. Henry Skinner (Ent. News, vii, 318, 1896) calls attention to the fact that the females of this species vary considerably, some specimens being blue and some green.

Among a short series of specimens collected for me by Mr. C. Harvey Crabill in August, 1914, at Camp Craig, Virginia, is one female which differs in another, and very marked respect, from the typical form. W. H. Edwards' description of the female (Proc. Ent. Soc. of Phila., III, 431, 1864) says of the under side of the primaries, "apex and hind margin brown," and of the secondaries, "basal two-thirds dark red brown," "the outer third of the wing blackish brown."

The specimen in question has all these areas described as "brown" of a dark bluish black. Has this variation been noted previously?—WM. C. WOOD, New York City.

Accidental Color Variation (Lep.).

I have in my collection a specimen (♀) of *Sphinx jamaicensis*, form *geminatus*, in which the pink color of the discal area of the secondaries is replaced by lemon yellow. The primaries are rather light in tone, with the brown markings reddish. The pupa from which it emerged (May 12, 1905) was the only one of a batch to reach maturity, the box having been alternately too dry and too wet.

Mr. S. D. Nixon (Ent. News, xxiii, 127, 1912) describes from a single male specimen a variety of "*Smerinthus jamaicensis*," which would seem to correspond very closely with my specimen, the chief point of variation from normal being the replacing of the pink of the secondaries by yellow.

In the collection of the National Museum in Washington there was, several years ago, a specimen (♀) of "*Smerinthus ocellatus* Linn." in which the pink of the secondaries was replaced by yellow, in precisely the same manner as in the foregoing instances. Also a specimen (♂) in which the pink was so reduced and faint as to make it an intergrade between the normal and the pale forms.

Is it not probable that this disappearance of the pink color is an accidental effect? The history of my bred specimen is at least suggestive.—WM. C. WOOD, New York City.

ENTOMOLOGICAL NEWS.

PHILADELPHIA, PA., JANUARY, 1916.

Remarks on Labelling.

The labeling of type specimens of new taxonomic forms, species, subspecies and varieties has become a recognized practice among all good students of entomology. It is not too much to say that this is obligatory, whether the types be pinned or be mounted as a microscopic slide.

It is probably much less common to mark material which, without being typical of new taxonomic forms, is the basis of published figures illustrating either whole structures or details of anatomy. Yet this also is very important and highly desirable, as it will enable a later investigator, examining that material, to explain, in many cases, why two writers on the same subject have reached divergent conclusions. The converse of this practice is also desirable, viz.: that the legends or explanations accompanying such published figures should indicate the exact place in a given lot of material from which the illustration has been made. For example, in connection with a drawing based on one section of a microtome series, it should be stated on which slide, in which row on the slide, and in what position (number) in that row that section is to be found. No honest and candid worker need have any fear of subjecting the evidence for his conclusions to the examination of his collaborators, contemporary or of later date.

One of the many good offices rendered by the late Professor John B. Smith to entomology was to mount in balsam the preparations of the mouth-parts illustrated on plates V to X accompanying Dr. George H. Horn's memoir "On the Genera of Carabidae." Horn had left these upon pinned cards labeled with the generic name. Smith transferred them to standard microscopic slides, each one of which is labeled in this style: "Carabus, Pl. V, f. 13, Coll. G. H. Horn." As long as these slides (now at the Academy of Natural Sciences of Philadelphia) are in existence, it will always be possible for the student of the ground beetles to comprehend Horn's results. It is to be hoped that all entomologists will follow the example set by the recent State Entomologist of New Jersey.

Euparyphus tetraspilus Loew (Diptera).

As an error occurs in the minutes of the June meeting of the American Entomological Society (Ent. News, xxvi, p. 376, October, 1915), I thought that, while correcting it, it would be appropriate to publish the available records of capture of this species. I captured the first and only New Jersey specimen of this species recorded at Boonton, Morris County, June 14, 1901 (Ins. N. J., p. 737, 1910). On June 2, 1908, the first recorded Pennsylvania specimen of this fly was caught by myself in Philadelphia, resting on a window pane—accidental of course. Mr. Harbeck and my brother, Chas. T. Greene, visited a small swamp near Thorp's Lane, upper Roxborough, Philadelphia, June 11, 1911, and found several specimens on the "arrow leaves." Later Mr. Harbeck, Mr. Haimbach and I visited this swamp, June 13 and 27, 1915, where I captured about twenty-five specimens on the same plant. I do not remember the exact circumstances under which the Boonton specimen was caught, but as most of my collecting was done along the Rockaway River and the "arrow leaves" were common there, it is almost certain that it was on these plants in which it probably breeds. Subsequently I visited the swamp alone July 6th and found none, but in their place *Odontomyia virgo* Wied. was numerous. The following records may be added: Danville, Pennsylvania, June 22, 1915, A. B. Champlain; Aweme, Manitoba, Canada, June 21, 1911, E. Criddle; Calgary, Alta., August 1, 1907, and Ottawa, Canada, July 2, 1907, Dr. Skinner; Beaver Dam, Wisconsin, June 4, 1908, and "N. Ill." in the collection of the American Entomological Society.—Geo. M. GREENE, Philadelphia, Pa.

Entomological Literature.

COMPILED BY E. T. CRESSON, JR., AND J. A. G. REHN.

Under the above head it is intended to note papers received at the Academy of Natural Sciences, of Philadelphia, pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species, will be recorded. The numbers in **Heavy-Faced Type** refer to the journals, as numbered in the following list, in which the papers are published.

All continued papers, with few exceptions, are recorded only at their first installments.

The records of systematic papers are all grouped at the end of each Order of which they treat, and are separated from the rest by a dash.

Unless mentioned in the title, the number of new species or forms are given at end of title, within brackets.

For records of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington. Also Review of Applied Entomology, Series A, London.

For records of papers on Medical Entomology, see Review of Applied Entomology, Series B.

4—The Canadian Entomologist. 5—Psyche. 8—The Entomologist's Monthly Magazine, London. 9—The Entomologist, London. 11—Annals and Magazine of Natural History, London. 12—

Comptes Rendus, L'Academie des Sciences, Paris. 28—Archives d'Anatomie Microscopique, Paris. 38—Wiener Entomologische Zeitung. 40—Societas Entomologica, Zurich. 46—Tijdschrift voor Entomologie. 50—Proceedings, U. S. National Museum. 59—Sitzungsberichte, Gesellschaft der naturforschenden Freunde, Berlin. 63—Science, New York. 74—Naturwissenschaftliche Wochenschrift, Berlin. 84—Entomologische Rundschau. 153—Bulletin, The American Museum of Natural History, New York. 161—Proceedings, The Biological Society of Washington. 164—Science Bulletin, University of Kansas, Lawrence. 166—Internationale Entomologische Zeitschrift, Guben. 184—Journal of Experimental Zoology, Philadelphia. 190—Deutsche Entomologische Zeitschrift "Iris," Dresden. 195—Bulletin of the Museum of Comparative Zoology, Cambridge. 216—Entomologische Zeitschrift, Frankfurt a. Main. 238—Anales, Sociedad Cientifica Argentina, Buenos Aires. 324—Journal of Animal Behavior, Cambridge. 344—U. S. Department of Agriculture, Washington, D. C. 410—Journal, Washington Academy of Sciences. 438—Bulletin, Illinois State Laboratory of Natural History, Urbana. 457—Memoirs of the Coleoptera by Thos. L. Casey, Washington. 490—The Journal of Parasitology, Urbana, Illinois. 509—Revue Generale des Sciences Pures et Appliquees, Paris. 517—Pennsylvania Department of Forestry, Harrisburg. 518—Tennessee, Agricultural Experiment Station of the University, Knoxville. 519—The Scientific Monthly, Lancaster, Pa. 520—Proceedings, British Columbia Entomological Society, Victoria.

GENERAL SUBJECT. Anderson, E. M.—Insects recorded in the Atlin district (Northern Br. Col.) during the summer of 1914, 520, 1915, 122-32. Apstein, C.—Nomina conservanda, 59, 1915, 119-202. Athanasin & Dragoin—La structure des muscles stries des insectes et leurs rapports avec les trachees aeriennes, 28, xvi, 345-61. Day, G. O.—Nomenclature and classification, 520, 1915, 99-110. Fabre, J. H.—Obituary notice, 216, xxix, 62-4. Obituary by H. Rowland-Brown, 9, 1915, 271-2. Henderson, J.—The publication of new species, 68, xlii, 725-6. Heyden, L. von—Obituary notice, 84, xxxii, 61. Hollande, A. Ch.—Coloration vitale par le "carmin soluble" chez les insectes, 12, clxi, 578-80. Mann, W. M.—Some myrmecophilous insects from Hayti, 5, xxii, 161-6. Roeber, J.—Gesichtssinn bei insekten, 40, xxx, 60-1 (cont.). Schirmer, C.—Altweibersommer. Ein miniaturbild aus dem insektenleben, 216, xxix, 53-4. Studhalter & Ruggles—Insects as carriers of the chestnut blight fungus, 517, Bul. 12. Turner, C. H.—Literature for 1914 on the behavior of spiders and insects other than ants,

324, v, 415-45. Weiss, H. B.—Some old classifications of insects, 4, 1915, 369-76.

PHYSIOLOGY AND EMBRYOLOGY. Mack, J. B.—A study of the dimensions of the chromosomes of the somatic cells of *Ambystoma*, 164, ix, 119-27. Stark, M. B.—The occurrence of lethal factors in inbred and wild stocks of *Drosophila*, 184, xix, 531-58. Zeleny & Senay—Variation in head length of spermatozoa in seven additional species of insects; The effect of selection upon the "bar eye" mutant of *Drosophila*, 184, xix, 505-14; 515-30.

MEDICAL. Agramonte, A.—The inside history of a great medical discovery, 519, i, 209-237.

ARACHNIDA, ETC. Cotton, E. C.—The N. American fever tick (*Boophilus annulatus*). Notes on life history, 518, Bul. 113.

Chamberlin, R. V.—New Chilopods from Mexico and the West Indies, 195, lix, 495-541. Weidman, F. D.—An arachnoid (*Pneumonyssus foxi*) parasitic in the lung of a monkey, 490, ii, 37-45.

ORTHOPTERA. Mann, W. M.—(See under General.) Walker, E. M.—Notes on a collection of O. from Prince Edward Island and the Magdalen Islands, Queb., 4, 1915, 339-44.

HEMIPTERA. Ball, E. D.—New genera and sps. of *Acocephalinae* [3 n. sps.], 161, xxviii, 165-8. Mann, W. M.—(See under General.) Parshley, H. M.—Systematic papers on New England Hemiptera. II. Synopsis of the Pentatomidae, 5, xxii, 170-77.

LEPIDOPTERA. Blackmore, E. H.—Further notes on the species of the genus *Hydriomena* occurring on Vancouver Island, B. C., 520, 1915, 114-5. Brunner, J.—The Zimmerman pine moth, 344, Bul. 295. Chrystal, R. N.—Notes on *Lithocolletis gaulteriella*, 520, 1915, 111-14. Hoffman, F.—Ueber eine verdienstvolle tatigkeit beim kodern, 216, xxix, 57-8. Lyne, W. H.—Comments on some peculiarities in connection with the life history of the codling-moth on the Pacific Coast, 520, No. 7, 33-5.

Blackmore, E. H.—Notes on the changes in Geometrid nomenclature, with records of species new to the list of Geometridae found in Br. Columbia, 520, 1915, 116-22. Bowdler Sharpe, E. M.—Descriptions of three new Neotropical butterflies, 11, xvi, 411-12. Fassl, A. H.—Neue Pieriden aus Sud-Amerika, 190, xxix, 176-81. Fruhstorfer, H.—Neue neotropische Nymphaliden, 40, xxx, 66. Giacomelli, E.—Contribucion al estudio de los lepidopteros Argentinos, 238, lxxviii, 161-175. Niepelt, W.—Neue formen sudamerikanischer tagfalter, 40, xxx, 63.

DIPTERA. Chidester, F. E.—Sarcophagid larvae from the painted turtle, 490, ii, 48-9. Hutchinson, R. H.—A maggot trap in practical use; an experiment in house-fly control, 344, Bul. 200.

Banks, N.—Notes and descriptions of Pipunculidae [4 new], 5, xxii, 166-70. Cockerell, T. D. A.—A new midge from Guatemala, 4, 1915, 315-6. Dietz, W. G.—Two new Tipulidae from northern Alberta [2 new], 4, 1915, 329-32. Felt, E. P.—New So. Am. gall midges, 5, xxii, 152-7. Malloch, J. R.—Some additional records of Chironomidae for Illinois and notes on other Illinois D. [2 n. gen.; 12 n. sps.], 438, xi, 305-63. Mann, W. M.—(See under General.) Schmitz, H.—Neue beitrage zur kenntnis der myrmecophilen und termitophilen Phoriden, 38, xxxiv, 311-30. Townsend, C. H. T.—New neotropical muscoid flies, 50, xlix, 405-40. A new generic name for the screw-worm fly, 410, v, 644-6.

COLEOPTERA. Chapin, E. A.—Early stages of Staphylinidae. I. Xantholinus cephalus, 5, xxii, 157-61. Heikertinger, F.—Ueber skulpturveränderungen auf kaeferflugeldecken hervorgerufen durch kochen, 38, xxxiv, 377-9. Muir, F.—Notes on the ontogeny of the genital tubes in C., 5, xxii, 147-52. Netolitsky, F.—Verbreitungskarten zur insektengeographie, 38, xxxiv, 387-91. Reitter, E.—Festschrift zum siebzigsten geburtstag....am 22. Oktober 1915, 38, xxiv, 215-87. Stellwaag, Dr.—Das springen der schnellkaefer (Elateriden), 74, 1915, 635-7. Wusthoff, A.—Ueber das präparieren kleiner kaefer, 166, ix, 75-6.

Casey, T. L.—A review of the American sps. of Rutelinae, Dynastinae and Cetoniinae [many new sps.]; Studies in some Staphylinid genera of No. Am. [many new], 457, vi, 1-394; 395-450. Leng, C. W.—List of the Carabidae of Florida [3 new], 153, xxxiv, 555-601. Swaine, J. M.—Descriptions of n. sps. of Ipidae [9 new], 4, 1915, 355-69.

HYMENOPTERA. Cockerell, T. D. A.—New Mutillidae from California [3 new], 9, 1915, 249-50. Cosens, A.—Notes on the strawberry leaf petiole gall (Diastrophus fragariae), 4, 1915, 354-5. Phillips & Demuth—Outdoor wintering of bees, 344, Farm. Bul. 695. Willem, V.—Comment les fleurs attirent les abeilles, 509, xxvi, 539-43. Wasmann, E.—Viviparität und entwicklung von Lomechusa und Ateameles, 38, xxxiv, 382-93.

Beutenmuller, W.—A new Diastrophus on strawberry, 4, 1915, 353-4. Brethes, J.—Prospalangia platensis (n. gen., n. sp.), 238, lxxix, 314-20. Mann, W. M.—A gynandromorphous mutillid from Montana, 5, xxii, 178-80. (See also under General.) Smulyan,

M. T.—Notes and descriptions of *Tenthredella* [4 new], 4, 1915, 321-26. Turner, R. E.—On a new sp. of *Pepsis* [S. Am.], 8, xvi, 413. Wasmann, E.—Eine neue *Pseudomyrma* aus der Ochsenhorn-dornakazie in Mexiko, 46, lviii, 296-325.

THE EMBRYOLOGY OF THE HONEY BEE. By JAMES ALLEN NELSON, Ph.D., Expert, Bee Culture Investigations, Bureau of Entomology, U. S. Department of Agriculture. Princeton University Press, Princeton, October, 1915, 12mo. Pp. vi, 282. 95 text figs., 6 plates. \$2.00 net.—The broad and comprehensive way in which the Bee Culture Investigations of the Bureau of Entomology have been considered and treated, since Dr. Everett Franklin Phillips was placed in charge of them in 1907, is strikingly illustrated by the publications which have emanated from the investigators concerned. Snodgrass has given us the results of a careful and original re-examination of the anatomy of the honey bee,¹ Casteel has corrected our notions of the manipulation of the wax scales² and the behavior of the bee in pollen collecting,³ McIndoo has informed us on the olfactory sense⁴ and on the scent-producing organ,⁵ Phillips, C. A. Browne, B. N. Gates, G. F. White and G. S. Demuth, singly or in conjunction,⁶ have dealt with various practical phases of apiculture and especially with bee diseases, while Phillips has summed up these and other researches and experiences in a recent volume⁷ in *The Rural Science Series*. Now comes the still more esoteric volume on the embryology of the Honey bee. The keynote to all this work is in the first sentence of the preface contributed by Phillips to Nelson's book before us: "The good bee-keeper is he who is interested not only in those things which have to do directly with the production of honey, but to whom everything pertaining to honey bees has a deep interest." The conception that "everything pertaining to honey bees" should include an extensive and intimate knowledge of structure, physiology, behavior and embryology exhibits a breadth of view which it is a pleasure to em-

¹ Technical Series No. 18, Bureau of Ent., etc., May 28, 1910; 162 pp., 57 figs.

² Circular 161 of the same. Oct. 4, 1912. 13 pp., 7 figs.

³ Bulletin 121 of the same. Dec. 31, 1912. 36 pp., 9 figs.

⁴ Journal of Experimental Zoology, xvi, 265-346, 24 figs., April, 1914.

⁵ Proceedings, Acad. Nat. Sci., Phila., 1914, 542-555, 1 text-fig., 2 pls., Aug. 21.

⁶ Bulletins 75 (1907-1909) and 98 (1912) of the Bureau of Entomology Farmers' Bulletins 442 and 447 (1911) and Bulletins 92, 93 and 96 (1914) of the U. S. Dept. Agric.

⁷ Beekeeping: A Discussion of the Life of the Honey Bee and of the Production of Honey, New York, The Macmillan Co. Aug., 1915.

phazise in a journal devoted rather to pure than to applied entomology.

Bütschli (1870), Kowalevski (1871), Grassi (1884), Blochmann (1889), Petrunkevitch (1901, 1903), Dickel (1903) and Nachtsheim (1913) have described various phases of the development of the egg of the honey bee, but Nelson's work is more extensive and thorough-going than any of these, although it is devoted to the embryonic history of the workers and queens only, not of the drones.

The first chapter (3 pp.) gives an historical review of the embryology of the honey bee, the second (pp. 4-15) describes oviposition and the organization of the undeveloped egg. Chapters III-VII (pp. 16-112) treat of the development of the embryo as a whole from cleavage, through the formation of blastoderm and germ layers to acquirement of the external form of the larva. Chapters VIII-XIV (pp. 113-245) deal with the development of organ-systems, especially the nervous system (Chap. VIII, pp. 113-166), and the fate of the yolk and yolk cells.

Special efforts were made to determine the rate of development and as a result the seventy-six hours spent within the egg are divided into fifteen stages, designated by the numerals I-XV; whose several lengths extend from 2 to 22 hours. These are discussed (in Chapter XV), tabulated (p. 247) and illustrated on the plates which represent views of entire eggs fixed, stained and mounted in balsam. (Certain differences in the ages of these stages will be observed on comparing page 247 with pages 99-105).

The sixteenth chapter comprises a description of the technique employed and an excellent summary of the entire course of development (pp. 253-261). A list of abbreviations applying to all the figures, a bibliography on insect embryology (pp. 265-272) and an index (pp. 273-282) complete the text.

The book appears to us to be very clearly written and the figures excellent. Although there are nominally ninety-five text figures, their actual number is much greater, as many of them are two-, three-, or even five-fold. Dr. Nelson does not confine himself to his own careful study of embryos, but compares his findings with those of previous investigators of the embryonic development of the honey bee, of other Hymenoptera and of insects in general. These features will render his book of great use to all laboratories where any phase of insect embryology is touched on, however lightly.

Turning to a few of the special or novel features of this volume, we may note the useful summary of the conclusions of embryologists as to the origin of the mesenteron of insects (pp. 71-77). Dr. Nelson thinks that the relation of the mesenteron rudiments in the honey bee may be interpreted in either of two ways: they may be referred to the mesoderm, or considered as purely blastodermal in origin,

"but a final decision....seems premature" (p. 78). He believes it more appropriate to consider the premandibular, or second antennal, "appendages" "as exaggerated ganglionic swellings," with a diminished probability that they do represent appendages (p. 110). The supralingual head segment of Folsom is wanting (p. 111). Twenty-one embryonic segments (6 cephalic, 3 thoracic and 12 abdominal) and twenty neuromeres (11 abdominal) are recognized (pp. 110, 111, 137, 256-7). "The writer was never successful in finding anything which could be safely construed as abdominal appendages. They certainly occur, nevertheless, in certain Hymenoptera" (p. 112). In a comparison of nervous systems of different insects "a larval stage" is denied to the Orthoptera (p. 117). Previous investigators have not mentioned the degenerating cells within the embryonic nerve tissue, isolated and in small number in the ventral cord, but in the brain abundant and to a certain extent localized in definite regions; the significance of this degeneration is not apparent (pp. 164-166). A pair of tracheal invaginations on the second maxillary segment give rise to the anterior ends of the tracheal trunks; they had been overlooked by Nelson's predecessors. On the basis of this discovery, the homology of the tentorial invaginations with those of tracheae "is made decidedly problematical" (pp. 172-175).

Comparatively little interest has been taken in insect embryology within the last decade, but this valuable book will unquestionably direct more attention to this highly important field of entomology.—P. P. C. (*Advnt.*)

MIMICRY IN BUTTERFLIES. By REGINALD CRUNDALL PUNNETT, F. R. S., Fellow of Gonville and Caius College, Arthur Balfour Professor of Genetics in the University of Cambridge. G. P. Putnam's Sons, New York. 159 pages, 16 plates, in color. 15 shillings net.—This is very interesting review of the whole subject of what is termed Batesian and Mullerian mimicry. The condensation from a vast amount of literature is efficiently accomplished. Mimicry in a number of North and South American species is treated and several plates are devoted to them. The author does not accept the usual explanation for the phenomenon. From the "Conclusion" we extract the following: "From the facts recorded in the preceding chapters it is clear that there are difficulties in the way of accepting the mimicry theory as an explanation for the remarkable resemblances which are often found between butterflies of distinct groups." . . . "The simplicity of the explanation is in itself attractive. But when the facts come to be examined critically it is evident that there are grave, if not insuperable, difficulties in the way of its acceptance . . . Nevertheless, the facts, as far as we at present know them, tell

definitely against the views generally held as to the part played by natural selection in the process of evolution."

For those who do not have time or opportunity to consult the original papers, this work will be of value, as it gives a comprehensive summary of them.—H. S. (*Adv't.*)

Doings of Societies.

Feldman Collecting Social.

Meeting of September 15, 1915, at the home of H. W. Wenzel, 5614 Stewart St., Philadelphia: Eight members were present, President H. A. Wenzel in the chair.

Coleoptera.—Mr. H. W. Wenzel exhibited a specimen of *Calosoma sycophanta* Linn. collected by Elmer Wenzel, Philada., July 27, 1915. Dr. Castle said he had collected in the meadows at Ocean City, New Jersey, August 28, and found *Conotrachelus fissunguis* LeC. and *Bothrotes arundinus* LeC. in numbers. At Pine Beach collecting was poor, but at Seaside Park, September 5, he had found about 500 *Balaninus* in the "washup." Mr. Laurent said he had taken about sixteen hundred specimens last year which he considered a poor season, but this is still worse. He had taken a few good things in different orders; in the Coleoptera he considered among his best captures a male *Leptura mutabilis* Newm. on ironwood, and a male (August 18) and a female (August 14) *Scaphinotus viduus* Dej. All three specimens were collected at Chestnut Hill and were exhibited. Mr. Haimbach reported a clover weevil, *Phytonomus meles* Fabr. as common on his place in Roxborough, Pennsylvania, this summer. Mr. Geo. M. Greene exhibited a male *Malacorhinus tripunctatus* Jacoby collected by H. Mitendorf in New Braunfels, Texas, April 4, 1902, representing a Chrysomelid species new to the United States.

Diptera.—Mr. Daecke said that men cutting down trees at Rockville, Pennsylvania, had left behind a barrel used by the horses for drinking purposes. He had noticed mosquito wrigglers in this Aug. 15th and had taken them home and bred *Megarhinus septentrionalis* Dyar and Knab; this is the most northern record. Mr. Geo. M. Greene stated that he had caught a specimen of this species at Chain Bridge, Virginia, September 8, 1915.

Adjourned to the annex.

GEO. M. GREENE, *Secretary.*

American Entomological Society.

Meeting of October 28, 1915, at the Academy of Natural Sciences of Philadelphia. Dr. Philip P. Calvert, President, in the chair. Twelve persons present. The President announced the death of a member, C. Few Seiss, September 5, 1915.

Lepidoptera.—Dr. Skinner exhibited a living yucca plant brought from Enterprise, Florida, by Dr. D. M. Castle. The plant contained the boring larva of a *Megathymus* which had pupated; the pupa was in a tough silken cocoon protruding centrally among the leaves of the plant. The two species of *Megathymus* found in Florida are *yuccae* and *cofaqui*, and the present species cannot be known until the imago appears.

Hymenoptera.—Mr. Laurent exhibited *Sirex cressoni* var. *unicolor*, taken at Mt. Airy, Philadelphia, July 17th, and *Pristaulacus flavicrurus*, Chestnut Hill, Philadelphia, July 17th.

Coleoptera.—Dr. Calvert referred to previous discussions on the presumed antenna-cleaner on the fore leg of Carabidae (see Ent. News, xxv, 141, 142) and read an extract from Miall's *Aquatic Insects* (pp. 376-378), in which such structures and their function are described.

Orthoptera.—Mr. Laurent exhibited a green roach, *Nyctobora laevigata* Beauv. taken at Germantown, Philadelphia, by Mr. Thompson. It is a tropical species and probably arrived in a bunch of bananas. Mr. Morgan Hebard spoke of the value of a two per cent. solution of formaldehyde in fixing the delicate colors of the Orthoptera, particularly the greens. The specimens are allowed to remain in the solution for two hours.

Mr. Wm. T. Davis was elected a member.—HENRY SKINNER, *Rec. Secretary*.

Newark Entomological Society.

Meetings held in the Newark (New Jersey) Public Library on October 10 and November 14, 1915. Pres. Buchholz in the chair. Average attendance 12 members.

Lepidoptera.—Mr. Doll exhibited some southern and western species including *Papilio troilus* L., from Florida; *Pholus typhon* Klug., from Arizona, and *Samia rubra* Behr., from California. Mr. Herman H. Brehme showed some exceptionally fine *regalis* larvae from Morgan, New Jersey, which he had inflated and colored. Mr. Buchholz spoke of having reared *Crocota immaculata* Reak. and *Crocota trimaculosa* from eggs, getting a fine series, the majority of which were females. Mr. Brehme at the October meeting stated that *Atteva punctella* Cram. & Stoll was very abundant at Morgan, New Jersey, on goldenrod. This species is recorded in Smith's 1909 list only from southern New Jersey. At the November meeting, Mr. Rummel exhibited the following captures: *Apantesis nais* Dru., V, 12; *A. radians* Wlk., V, 18; *A. vittata* Fabr., V, 12, all from Upper Montclair, New Jersey, and *Apatura clyton* Bd., VII, 20; *Libythea bachmani* Kirtl., VII, 20, from North Arlington, New Jersey. Messrs. Buchholz and Lemmer reported the captures of *Xylina pexata* Grt.

and *Xylina capax* G. & R. at Lakehurst, New Jersey, October 17, and Messrs. Mayfield and Keller the capture of *Catocala serena* Edw. larva on shellbark hickory at Orange Mts. Reserve, New Jersey, during June. Mr. Weiss mentioned the occurrence of *Utetheisa bella* L. larvae in large numbers on *Lespedeza* at Jamesburg, New Jersey, September 2, and of *Evetria buoliana* Shiff. larvae in the tips of Mugho and Austrian pines at Rutherford, New Jersey, during the past summer. This last is the European pine shoot moth recently established in New Jersey. He also stated that *Melalopha inclusa* Hubn. larvae were more abundant than usual during the summer on poplar trees in different parts of New Jersey and recorded *Pinipestis zimmermanni* Grt. from Eatontown, New Jersey, August 5.

Orthoptera.—At the October meeting, Mr. Weiss exhibited eggs, nymphs and adults of the European mole cricket, *Gryllotalpa gryllotalpa* L., taken at Rutherford, New Jersey, and stated that the firm on whose premises they were found, claimed to have destroyed at least 20,000, including eggs. This is another European insect recently found inhabiting New Jersey.

Homoptera.—Mr. Rummel at the November meeting recorded the Periodical Cicada during May and June, 1915, from Garwood and Upper Montclair. Records of this brood in New Jersey are scarce.

Coleoptera.—Mr. Stortz commented on the scarcity of *Lixus concavus* on dock the past summer and exhibited specimens of this species. Specimens of *Corthylus punctatissimus* Zimm. and their work in rhododendron stems were shown by Mr. Weiss, who stated that this insect had recently become somewhat of a pest on a private estate at Somerville, New Jersey. He also showed *Eucactophagus graphipterus* Champ., a Calandrid whose larva lives in soft bulbed orchids. This species, which is a native of Central America, was taken in a New Jersey greenhouse. Mr. Weiss also showed *Plagioderma versicolora* Laich., a Chrysomelid common in Europe, which was found to be established in New Jersey at Arlington and Irvington, feeding on poplars and willows and doing considerable damage the past summer.

Hymenoptera.—*Pteroncus hudsonii* Dyar, August, Rutherford, Trenton, New Jersey, larvae on poplar, were recorded by Mr. Weiss, who also remarked on the unusual abundance of saw flies the past season, especially such species as *Lophyrus abbottii* Leach and *L. lecontei* Fitch on pines.—HARRY B. WEISS, *Rec. Secretary*.

OBITUARY.

Prof. RAPHAEL MELDOLA, who was President of the Entomological Society of London in 1895 and 1896, died in that city on November 16, 1915, according to a despatch published

in the daily papers. He was born in London in 1849 and at the time of his death was professor of organic chemistry in the University of London. His work was mainly with the chemical structure of organic compounds containing nitrogen and devising synthetical methods for producing coloring matters, as from coal-tar, but he found time to devote to entomology, especially on its physiological and evolutionary sides. One of his earliest papers was *On the amount of substance-waste undergone by insects in the pupal state, with remarks on Papilio ajax* (1873), based in part on W. H. Edwards' tables, which led to a mild controversy with S. H. Scudder. At least eight papers, from 1872 to 1905, dealt with protective resemblance and mimicry, and he was one of the earliest exponents in England of Müllerian mimicry. His presidential addresses to the Entomological Society of London (which he joined in 1872) were on *The Speculative Method in Entomology* (1895) and *The Utility of Specific Characters and Physiological Correlation* (1896). On the one hand he translated and edited Weismann's *Studies in the Theory of Descent* (1882) and on the other indulged in local faunistics, as evidenced by *The Lepidoptera of Leyton and Neighbourhood: a contribution to the County Fauna* (1891) and *What has become of the British Satyridae?* (1911). He was a member of the Royal, chemical and other technical societies and had received several honorary degrees.

DR. FREDERICK WILLIAM RUSSELL, for many years a practitioner in the town of Winchendon, Massachusetts, died at the residence of his son-in-law, Dr. Frank J. Hall, 4119 Cedar Springs Avenue, Dallas, Texas, November 20, 1915, aged seventy-one.

He graduated from Harvard College in the class of 1869, and from the Medical Department of New York University in the class of 1871. He was a hospital steward during the Civil War, and served in that capacity under his father, Dr. Ira Russell, who was commissioned by Abraham Lincoln to organize the hospital service in Tennessee, Missouri and Ar-

kansas, both father and son being in service at the close of the war at Prairie Grove, Arkansas.

After his graduation in medicine he associated himself in practice with his father in Winchendon, where father and son together conducted "The Highlands," a private institution for the treatment of mental and nervous invalids, established by Dr. Ira Russell, and one of the first of its kind.

After the death of his father, in 1888, Dr. F. W. Russell continued "The Highlands" up to three years ago, when from ill health he gave up active work to make his home (together with his wife, Mrs. Caroline Marvin Russell, who survives him) with his daughter, Mrs. Frank J. Hall, in Dallas. During his brief residence in Dallas, because of his genial nature and interest in all social and scientific bodies, he made many friends.

In-connection with his medical studies, Dr. Russell made a lifetime study of entomology and formed a collection of moths.

His remains were taken by his son, Walter M. Russell, of Emporia, Kansas, to Winchendon, Mass., where they were laid to rest in the family lot.—F. J. H.

[Dr. Russell was a substantial friend of the NEWS in its early days and his interest in the journal was continued to the last. The number for April, 1915, contains an illustrated article from his pen: "A Remarkable Abdominal Structure in Certain Moths."]

A card from Mr. P. Wytsman, from Brussels (Belgium), informs me of the death of M. CHARLES KERREMANS, which occurred on the tenth of October, 1915, at the age of 68 years. M. Kerremans was a student of the Buprestids, and his great monograph of this family remains, unfortunately, unfinished with the first part of the seventh volume of this monumental work.—A. FENYES, Pasadena, Calif.

The number of ENTOMOLOGICAL NEWS for December, 1915, was mailed at the Philadelphia Post Office on December 3, 1915.

The first line on page ii, volume xxv, of the NEWS should read, "The several numbers of the NEWS for 1914," etc.

Vol. xxv, page 445, 13th line from bottom for "1892" read "1852."

EXCHANGES.

Not Exceeding Three Lines Free to Subscribers.

These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and only when necessary those at the top (being longest in) are discontinued

Wanted for cash or exchange—Neuroptera, especially Dobson, Stone and Caddice Flies; Hemiptera, larger species, *Belostoma*, Ambush Bugs, etc.; also *Papilio cresphontes*, *P. ajax*, *Act. luna*, *Cith. regalis*, *E. imperialis*, *Datana ministra*, *Anisota senatoria* and other Noxious and Beneficial Insects with their Life Histories, etc.—The Kny-Scheerer Co., New York.

Wanted—Live pupae of *Argynnis diana*.—C. W. Allen, 812 N. 7th Ave., Maywood, Ill.

I will pay highest cash prices or give generous exchanges for good specimens of almost any of the *Plusia* group (from *Plusia* to *Autographa* and *Syngrapha* inclusive). Would also be glad to identify specimens as I am satisfied that the majority of the material in American collections is misnamed.—R. Ottolengui, 80 W. 40th St., New York City.

Wanted—Living pupae of *Papilio asterias*, *P. zolicaon*, *S. cynthia*, *S. cecropia*, *promethea*, *io*, *polyphemus*, *regalis*, *imperialis*, *augulifera*, *rubra* and other Saturniidae in exchange or for cash.—A. F. Porter, Decorah, Illinois.

Wanted—U. S. Bur. Ent. Bul. n. s. 39; Tech. Ser. 1, 4. Circ. 1, 22, 52. Insect Life, Vol. 5, No. 5; U. S. Ent. Comm. Repts. 1 and 5.—College of Hawaii, Honolulu, T. H.

Coleoptera—Records of species desired for the preparation of a Manitoba list. Will persons having specimens or records kindly communicate with N. Criddle, Entomological Branch, Ottawa, Can.

Wanted—*Cicindela patruela*, *hentzii*, *modesta*, *audubonii*, *ancociscensis*, *imperfecta*, *rectilatera*, *abdominalis*, *formosa* and *unipuncta*. Fine North American and exotic specimens given in exchange.—Harry L. Johnson, South Meriden, Conn.

Send for my list of Coleoptera No. 1, January, 1916.—F. W. Nunenmacher, 1118 Oakland Ave., Piedmont, California.

For Exchange (specimen for specimen)—*Catocala titania* for *C. santa*, *C. jair*, *C. amestris*, *C. coelebs*, *C. olivia*, *C. canadensis*, *C. meskei*, from the east, *C. werneri* and *C. beutenmuellerii*.—Ernst Schwarz, 6310 N. Newstead Ave., St. Louis, Mo.

Tremex columba (Hymenoptera)—Perfect specimens, male and female, offered in exchange for No. Am. Coleoptera and Lepidoptera.—Philip Laurent, 31 East Mt. Airy Ave., Phila., Pa.

THE JOURNAL OF PARASITOLOGY

DEVOTED TO MEDICAL ZOOLOGY.

ISSUED QUARTERLY.

A medium for the prompt publication of briefer papers and research notes on animal parasites. Emphasis laid on the morphology, life history and biology of zooparasites, and the relations of animals to disease.

SUBSCRIPTION PRICE, \$2.00; CANADA, \$2.15

FOREIGN, 10 s; 10 mk; 12 fr.

All correspondence should be addressed to the

Managing Editor, Journal of Parasitology

Urbana, Illinois, U. S. A.

COLEOPTERA ILLUSTRATA Vol. 1, No. 1

By HOWARD NOTMAN

Price, \$1

CONTENTS

Price, \$1

Calosoma
sycophanta Linn.
denticolle Gebl.
auropunctatum Hrbst.
reticulatum Fabr.
Callisthenes
eversmannii Chaud.
Damaster
blaptoides Kollar.
Procerus
gigas Creutz.
Procrustes
coriaceus Linn.
impressus Klug.
Carabus
hemprichii Klug.
bonplandii Men.
pyrenaeus Dej.
irregularis Fabr.
creutzerii Fabr.

Carabus
intricatus Linn.
croaticus Dej.
violaceus Linn.
v. crenatus Sturm.
exaratus Quens.
variolosus Fabr.
hispanus Fabr.
auronitens Fabr.
adamsii Adams.
v. armeniacus Mnnh.
melancholicus Fabr.
v. costatus Germ.
rugosus Fabr.
morbillosus Fabr.
numida Casteln.
convexus Fabr.
marginatus Fabr.
nemoralis Mull.
montivagus Pall.

Carabus
nitens Linn.
maeander Fisch.
auratus Linn.
clathratus Linn.
granulatus Linn.
cancellatus Illig.
arvensis Hrbst.
catenatus Panz.
christoforii Spence.
obsoletus Sturm.
v. euchromus Pall.
monilis Fabr.
maurus Adams.
scabriusculus Oliv.
hortensis Linn.
guadarramus Laf.
stahlinii Adams.
alpestris Sturm.
bertolinii Kr.

COLEOPTERA ILLUSTRATA Vol. 1, No. 1, mailed on receipt of price

HOWARD NOTMAN

136 JORALEMON STREET, BROOKLYN, N. Y.

Enlarged Drawings of Uniform Size, One to a Page, 8vo.

NEW JERSEY ENTOMOLOGICAL COMPANY

74 THIRTEENTH AVENUE, NEWARK, N. J.

Dealers in Insects of all Orders. Lepidoptera Pupae and Cocoons. Biological Material our Specialty. Life Histories—30 years' experience in that line. Entomological Supplies. Send for our Lists.

New Jersey Entomological Co.

Herman H. Brehme, Manager.

PIN LABELS IN 4 PT. TYPE ON WHITE LEDGER PAPER, 25 CHAR. OR LESS @ 25c. PER 1000; ADD. CHAR. @ 1c. EACH PER 1000. No charge for blank lines. One cut makes a label. All kinds of printing.

E. REHN-CASEY, 1918 N. 21st Street, Philadelphia, Pa.

The Celebrated Original Dust and Pest-Proof METAL CABINETS FOR SCHMITT BOXES

These cabinets have a specially constructed groove or trough around the front, lined with a material of our own design, which is adjustable to the pressure of the front cover. The cover, when in place, is made fast by spring wire locks or clasps, causing a constant pressure on the lining in the groove. The cabinet, in addition to being absolutely dust, moth and dermestes proof, is impervious to fire, smoke, water and atmospheric changes. Obviously, these cabinets are far superior to any constructed of non-metallic material.

The interior is made of metal, with upright partition in center. On the sides are metal supports to hold 28 boxes. The regular size is 42½ in. high, 13 in. deep, 18½ in. wide, inside dimensions; usually enameled green outside. For details of Dr. Skinner's construction of this cabinet, see Entomological News, Vol. XV, page 177.

METAL INSECT BOX has all the essential merits of the cabinet, having a groove, clasps, etc. Bottom inside lined with cork; the outside enameled any color desired. The regular dimensions, outside, are 9 x 13 x 2½ in. deep, but can be furnished any size.

WOOD INSECT BOX.—We do not assert that this wooden box has all the qualities of the metal box, especially in regard to safety from smoke, fire, water and dampness, but the chemically prepared material fastened to the under edge of the lid makes a box, we think, superior to any other wood insect box. The bottom is cork lined. Outside varnished. For catalogue and prices inquire of

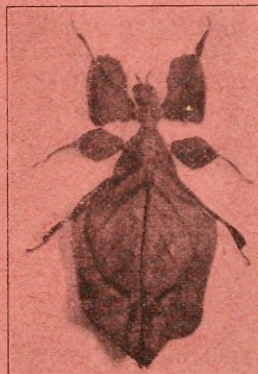
BROCK BROS., Harvard Square, Cambridge, Mass.

WARD'S Natural Science Establishment 84-102 COLLEGE AVENUE, ROCHESTER, N. Y.

As successors to the American Entomological Co., of Brooklyn, N. Y., we are the sole manufacturers of the genuine Schmitt insect boxes and the American Entomological Co.'s insect pins. Catalogue No. 30 of Entomological Supplies free upon request.

North American and exotic insects of all orders furnished promptly from stock. Write for our special lists of Lepidoptera and Coleoptera.

Our live pupae list is now ready. Let us put your name on our mailing list for all of our Entomological circulars.



Ward's Natural Science Establishment

FOUNDED 1862

INCORPORATED 1890

When Writing Please Mention "Entomological News."

THE KNY-SCHEERER COMPANY

Department of Natural Science

404-410 W. 27th St., New York

North American and Exotic Insects of all orders in perfect condition
Entomological Supplies Catalogue gratis

INSECT BOXES—We have given special attention to the manufacture of insect cases and can guarantee our cases to be of the best quality and workmanship obtainable.



NS/3085

NS/3085—Plain Boxes for Duplicates—Pasteboard boxes, compressed, turf lined with plain pasteboard covers, cloth hinged, for shipping specimens or keeping duplicates. These boxes are of heavy pasteboard and more carefully made than the ones usually found in the market.

Size 10x15½ in. Each **\$0.25**
Size 8x10½ in. Each **.15**

NS/3091—Lepidoptera Box (improved museum style), of wood, cover and bottom of strong pasteboard, covered with bronze paper, gilt trimming; inside covered with white glazed paper. Best quality. Each box in extra carton.

Size 10x12 in., lined with compressed turf (peat).
Per dozen. **5.00**
Size 10x12 in., lined with compressed cork.
Per dozen. **6.00**

Caution:—Cheap imitations are sold. See our name and address in corner of cover.



NS/3091

(For exhibition purposes)



NS/3121

NS/3121—K.S. Exhibition Cases, wooden boxes, glass cover fitting very tightly; compressed cork or peat lined, covered inside with white glazed paper. Class A. Stained imitation oak, cherry or walnut.

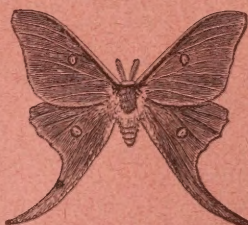
Size 8x11x2½ in. (or to order, 8¾x10¾x2¾ in.).... **\$0.70**
Size 12x16x2½ in. (or to order, 12x15x2¼ in.)..... **1.20**
Size 14x22x2½ in. (or to order, 14x22x2½ in.)..... **2.00**
Special prices if ordered in larger quantities.

THE KNY-SCHEERER CO.

DEPARTMENT OF NATURAL SCIENCE.

G. LAGAI, Ph.D., 404 W. 27th Street, New York, N. Y.

PARIS EXPOSITION:
Eight Awards and Medals



PAN-AMERICAN EXPOSITION
Gold Medal

ST. LOUIS EXPOSITION: Grand Prize and Gold Medal

ENTOMOLOGICAL SUPPLIES AND SPECIMENS

North American and exotic insects of all orders in perfect condition.
Single specimens and collections illustrating mimicry, protective coloration, dimorphism, collections of representatives of the different orders of insects, etc.
Series of specimens illustrating insect life, color variation, etc.

Metamorphoses of insects.

We manufacture all kinds of insect boxes and cases (Schmitt insect boxes, Lepidoptera boxes, etc.), cabinets, nets, insects pins, forceps, etc..

Riker specimen mounts at reduced prices.

Catalogues and special circulars free on application.

Rare insects bought and sold.

FOR SALE—*Papilio columbus (gundlachianus)*, the brightest colored American *Papilio*, very rare, perfect specimens \$1.50 each; second quality \$1.00 each.

When Writing Please Mention "Entomological News."

P. C. Stockhausen. Printer, 53-55 N. 7th Street, Philadelphia.